FOUNDRY TRADE JOURNAL

EST. 1902

WITH WHICH IS INCORPORATED THE IRON AND STEEL TRADES JOURNAL

VOL. 107
No. 2241

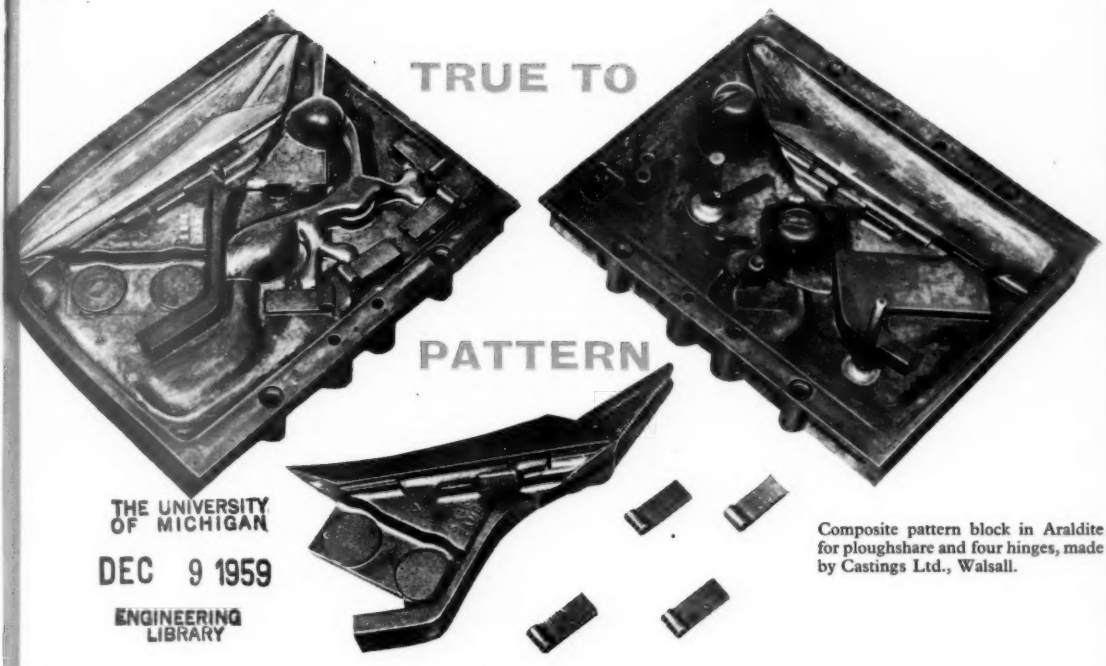
NOVEMBER 19, 1959

Registered at the G.P.O. as a Newspaper

Offices. John Adam House, John Adam St., London, W.C.2

Single Copy, 1/-. By Post 1/4. Annual Subscription, Home 52/-, Abroad 60/- (Prepaid)

THE UNIVERSITY OF MICHIGAN
DEC 9 1959
ENGINEERING LIBRARY



Composite pattern block in Araldite for ploughshare and four hinges, made by Castings Ltd., Walsall.

...cas of master patterns, such as are required for machine moulding, can be made ...aldite Casting Resin F speedily, and with great savings in labour costs. Such ...icas are extremely accurate in detail and dimensions, as Araldite does not shrink ...ting, and surface finish is equal to that of the best metal patterns. The Araldite ...n is tough, and can be used for long periods without wear. As Araldite is ...nt to chemical action, and has no grain structure, patterns of filled resin are ...ble for work using the CO_2 process. These patterns are resistant to heat, cold ...oisture, and are not easily damaged, so that they need little attention either ... or in storage. May we send you further details of Araldite for foundry work ?

Araldite epoxy resins are used

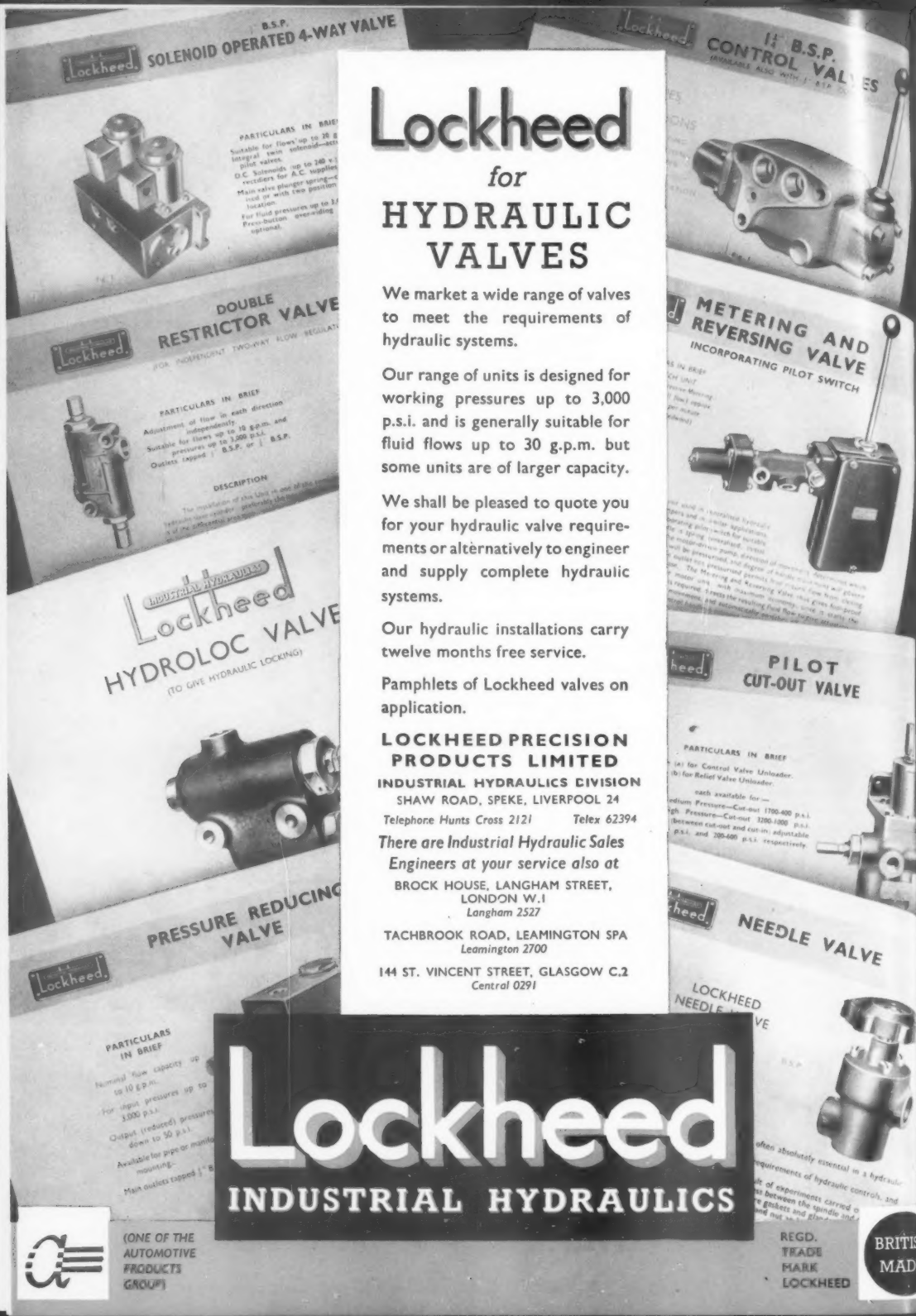
* **for casting high grade solid electrical insulation**
* **for impregnating, potting and sealing electrical windings and components**
* **for producing glass fibre laminates**
* **for producing patterns, models, jigs and tools**
* **as fillers for sheet metal work**
* **as protective coatings for metal, wood and ceramic surfaces**
* **for bonding metals, ceramics, etc.**

Araldite *epoxy resins*

Araldite is a registered trade name

CIBA (A.R.L.) LIMITED *DUXFORD, CAMBRIDGE. TEL: SAWSTON 2121*

AP 476



Lockheed
for
HYDRAULIC VALVES

We market a wide range of valves to meet the requirements of hydraulic systems.

Our range of units is designed for working pressures up to 3,000 p.s.i. and is generally suitable for fluid flows up to 30 g.p.m. but some units are of larger capacity.

We shall be pleased to quote you for your hydraulic valve requirements or alternatively to engineer and supply complete hydraulic systems.

Our hydraulic installations carry twelve months free service.

Pamphlets of Lockheed valves on application.

LOCKHEED PRECISION PRODUCTS LIMITED
INDUSTRIAL HYDRAULICS DIVISION
SHAW ROAD, SPEKE, LIVERPOOL 24
Telephone Hunts Cross 2121 *Telex 62394*

There are Industrial Hydraulic Sales Engineers at your service also at

BROCK HOUSE, LANGHAM STREET, LONDON W.1
Langham 2527

TACHBROOK ROAD, LEAMINGTON SPA
Leamington 2700

144 ST. VINCENT STREET, GLASGOW C.2
Central 0291

FOUNDRY TRADE JOURNAL

Vol. 107. November 19, 1959 No. 2241

Established 1902

Incorporating

IRON & STEEL TRADES JOURNAL

Single copy 1s.*; by post* 1s. 4d. *Annual subscription: home* 52s. *abroad* 60s. *(prepaid)*

Editor:
V. C. FAULKNER, F.R.S.A., HON.M.I.B.F.

Assistant Editor: A. R. PARKES, M.I.B.F.
Commercial Editor: P. E. CARDEN.

Advertising Manager:
F. BARRINGTON HOOPER, B.A.

Production Manager:
R. J. LOVELL

Publisher: H. J. DWYER
Circulation Manager: E. T. GRIFFITHS

District Representatives:
G. P. ELLIOTT (Northern Area) 'phone: Altrincham 1334
T. H. SMITH (Scotland) 'phone: Dumbarton 1046
D. C. RYALL (Southern Area) 'phone: TRAfalgar 6171

The FOUNDRY TRADE JOURNAL is the official organ of the British Steel Founders' Association; Association of Bronze & Brass Founders; the Light Metal Founders Association; Foundry Trades' Equipment & Supplies Association; and the National Society of Master Patternmakers.

AN INDUSTRIAL NEWSPAPERS PUBLICATION

Published Every Thursday by Industrial Newspapers, Limited

BARRINGTON HOOPER, C.B.E., *Chairman and Joint Managing Director*
F. BARRINGTON HOOPER, B.A., *Joint Managing Director and Commercial Director*
F. R. LEWIS, JOHN HOOPER, D. HORN *Directors*
E. G. WESTON, *Director and Secretary*

JOHN ADAM HOUSE, 17-19, JOHN ADAM STREET, ADELPHI, LONDON, W.C.2

Telephone: Trafalgar 6171 *(Private Branch Exchange)*
Telegraphic Address: "Zacatecas, Rand, London"

PRINCIPAL CONTENTS

PAGE

Stereophotomicrographs—Production and Viewing

By J. Ferdinand Kayser, F.I.M., Assoc.Met.

Potential uses of stereophotographs are discussed, especially as regards research on moulding sand, and useful hints are given on how to make stereopairs and view them without artificial aids 477

The French Foundry Association

By P. R. Gordon, B.A.

The organization and functions of the *Syndicat Général des Fondeurs de France* are described in detail, and compared with the set-up in British foundry associations 483

Moisture Control by Nuclear Device

Details are given of a Plutonium 238 source which is being used in an American firm's foundry to measure the moisture content of moulding sand 487

Production et Examen de Micrographes stéréoscopiques. Par J. Ferdinand Kayser, F.I.M., Assoc.Met.
Les usages potentiels de la photographie stéréoscopique sont passés en revue, spécialement en ce qui concerne les recherches sur les sables de moulage et des conseils utiles sont donnés sur la façon de faire des paires stéréoscopiques et de les étudier sans aide artificielle 477

Le Syndicat Général des Fondeurs de France. Par P. R. Gordon, B.A.
L'organisation et le fonctionnement du Syndicat Général des Fondeurs de France sont décrits en détail, et comparés avec les organismes similaires des associations de fonderies britanniques .. 483

Contrôle de l'Humidité au moyen d'un Dispositif nucléaire.
Des détails sont donnés sur une source de Plutonium 238 qui est utilisée dans la fonderie d'une firme américaine, pour mesurer la teneur en humidité des sables de moulage 487

Herstellung und Methode der Betrachtung stereoskopischer Mikrofotografien. Von J. Ferdinand Kayser, F.I.M., Assoc.Met.
Es werden die Anwendungsmöglichkeiten der Stereofotografie besprochen, insbesondere auf dem Gebiete der Formsandforschung, und nützliche Hinweise werden gegeben, wie stereokopische Doppelaufnahmen gemacht und ohne künstliche Hilfsmittel betrachtet werden können 477

Die französische Giessereivereinigung. Von P. R. Gordon, B.A.
Die Organisation und das Arbeitsgebiet des "Syndicat General des Fondeurs de France" werden eingehend beschrieben und mit den entsprechenden Funktionen englischer Giessereivereinigungen verglichen 483

Feuchtigkeitskontrolle mittels eines Kernenergiegerätes.
Es werden Einzelheiten eines Plutonium 238 enthaltenden Prüfgerätes gegeben, welches in der Giesserei einer amerikanischen Firma verwendet wird, um den Feuchtigkeitsgehalt von Formsand zu bestimmen 487

Features, News, Commercial Information and Statistics

Leader: Exporting to the Middle East 475
Apprentices' Prize Distribution 476
Forthcoming Events 476
Latest Foundry Statistics 476
Holman Group Expansion 485
Equipment and Supplies 486
Law Cases 488
Massey-Ferguson Organization 488
Notes from the Branches 489
BIR Congress 489
American Letter 490
Factories Act, 1959 492
Rayburn Window-display Competition 492
Works Visits 492
Pension Scheme—Contracting Out 493
IBF Foundry Foremen's Course 494
JIC Scholarship 494
News in Brief 495
Personal 497
Raw Material Markets 502
Current Prices of Iron, Steel and Non-ferrous Metals 504
Company News 506

SAND MIXING with AUGUST-SIMPSON Porto-Muller

The Muller that goes to the job!

Photograph published by courtesy of Messrs. E. GREEN & SONS LTD., WAKEFIELD

This small production unit for mixing loam, sands for the CO_2 process, oil sands, facing sand, etc.—has won widest popularity because it fills so efficiently a long-felt foundry want.

Photograph shows Porto-Muller, discharging mixed loam for use in core-making. This portable unit—the smallest production size in our range of spring-loaded mix-mullers, handles approximately 200 lbs. (discharged weight).

Made also with a fixed understructure where portability is not required.

Sole Licensees and Manufacturers for the British Empire (excluding Canada, Australia and New Zealand) of the Simpson Sand Mixer.

AUGUST'S LIMITED · HALIFAX · ENGLAND

Telephone: Halifax 61245/6/7/8 *Telegrams: August, Halifax*

J.J.M.

FOUNDRY
TRADE JOURNAL
Vol. 107 NOVEMBER 19, 1959 No. 2241

Exporting to the Middle East

Frankly, because of political disturbances, the Middle East has made no great appeal in recent years to exporters, yet as Mr. F. J. Erroll, M.P., Minister of State, Board of Trade, pointed out at a Press Conference recently, the market—especially that associated with oil-exporting countries—is fundamentally sound. This soundness is due to the fact that the revenue from oil is this year about £500 million, and practically the whole will be spent outside the producing countries. Traditionally, the Middle East is a British market and the *lingua franca* for that market is English. Our goods are well known and highly appreciated.

It is useful to bear in mind that there has been in existence for a few years an Advisory Council on Middle East Trade, of which Mr. Erroll is chairman and Mr. H. G. Nelson (managing director of the English Electric Company, Limited) is vice-chairman. To draw attention to the importance of the market, the Council has now issued a 16-page booklet,* which briefly runs through particulars of the 16 countries comprising this area. Together, in 1958, they took goods to the value of nearly £200 million from this country and amongst these—though not detailed—there must have been a substantial amount originating in the foundry industry. This year, for example, two large firms with foundry interests have announced the receipt of really important orders from the Middle East.

It is alike natural and advisable for the principals of firms desiring to do business in the area to visit prospective buyers and—during the coffee session—"haggle" over prices. Then without reference to headquarters, they can clinch the deal on the spot. Unfortunately, for the smaller concerns, this is not possible and Mr. Erroll's advice at the Press conference was the appointment of merchants familiar with the markets to act for them. The Board of Trade can usefully be consulted when searching for such agencies. Finally, it seems wise, in view of the inroads made into this market by West Germany and Japan, to "soft-pedal" the political upsets and play up to the notion that £500 million can buy a tremendous amount of capital and consumer goods and services, no matter who controls the purse strings.

* Exporting to the Middle East, obtainable free of charge from Room 0348, Board of Trade, Horse Guards Avenue, Whitehall, London, S.W.1

Apprentices' Prize Distribution

A total of over 400, mainly consisting of parents and other relatives, gathered in the canteen of F. H. Lloyd & Company, Limited, on the evening of November 10 for the annual prize distribution to the apprentices of the Lloyd group of steel foundries, *i.e.*, F. H. Lloyd & Company, Limited, Lloyd's (Burton), Limited, and Parker Foundry (1929), Limited. From the dais, Mr. D. B. Beynon, labour manager, first welcomed the guests who, besides parents, included representatives of local education authorities and some large firms in the neighbourhood. It was extremely gratifying, he said —in these days when one hears so much about lack of parental interest—to see how many of the apprentices' fathers and mothers had in fact turned up that evening in support of their offspring. Then followed the training officer's report presented by Mr. E. J. Whitehouse. He said that ten years ago, a total of £37 value had been awarded in prizes and over the period since so great had been the increase in the number of apprentices and their success that the value of prizes on show this year was ten times that amount, a total of 149 apprentices receiving such awards. The awards themselves were of two types—a monetary gift for diligence and success in the company's own training scheme (here, a total of £1,200 was distributed) and a prize of quite substantial nature (electric drills, brief-cases, sets of tools, instruments, etc., at the recipient's choice) for success in external activities, *e.g.*, technical college, City & Guilds and other examinations, as well as some for sporting activity. In addition, certificates of apprenticeship were awarded to 17 young men who had completed their five-year period and apprentice agreements were handed over to 27 from the three foundries who had recently been accepted into employment. Mr. M. C. Lloyd, assistant managing director of F. H. Lloyd & Company, Limited, after a brief address, presented certificates and prizes to the candidates from the Wednesbury firm, Mr. W. R. Cooper, works director, Lloyd's (Burton), Limited, handed over those for the Burton employees, and Mr. R. A. Duff, works director, Parker Foundry (1929), Limited, those for the Derby personnel. The presentations, a total of 180 in all, took considerable time; the proceedings were fully reminiscent of college prize-distributions, each recipient being applauded from the hall as he walked to the dais and shook hands with the donor.

Following the presentations, the thanks of the apprentices were voiced by one of their number, Mr. Bernard Corrigan, who said how much appreciated it was that the firms had the interest of their young people so much at heart and showed it in such practical fashion. Before the visitors left, refreshments were served and if they wished, parties conducted by apprentices or staff were taken to visit the areas of the works where the various apprentices did their daily job.

The whole proceedings were an object-lesson in employer/employee relations. The serious bearing of the young men gave the impression that they had chosen a career with a worthwhile firm in a basic industry, their parents saw how well their training was looked after and Mr. Lloyd's words that the highest executive jobs in the firm were open to ex-apprentices must have stirred many to new ambitions.

CONCERNS DESIRING to have particulars of Pakistan's forthcoming requirements for sluice gates, valves, and the like, should write to the Board of Trade, Export Services Branch, Lacon House, Theobalds Road, London, W.C.1, quoting Reference Nos. ESB/26794/59 and ESB/26695/59ICA.

Forthcoming Events

NOVEMBER 23

Institution of Production Engineers

Manchester branch: "Diploma in Technology," by Dr. C. W. Whitworth, 7.15 p.m., in the Reynold's Hall, Manchester College of Science and Technology, Sackville Street.

NOVEMBER 24

National Society of Master Patternmakers

Visit to the Production Engineering Research Association, Melton Mowbray, preceded by luncheon at the Bell Hotel, 12 for 12.30 p.m.

Institute of British Foundrymen

Slough section: "My Hungarian Tour," by A. R. Parkes, 7.30 p.m., in the Lecture Theatre, High Duty Alloys, Limited.

Institute of Fuel

Scottish section: "The Turbo Furnace," by G. Williams, 7 p.m., at the Royal College of Science and Technology, Glasgow.

NOVEMBER 25

Institution of Production Engineers

Worcester branch: "High Cost of Low Overheads," by C. H. Starr, 7.30 p.m., at the Star Hotel, Worcester.

Institute of British Foundrymen

Birmingham branch: "Pattern Flow Moulding at Soho and Tame Bridge Foundries," by A. J. Shore, 7.15 p.m., at the James Watt Memorial Institute, Great Charles Street.

NOVEMBER 26

Institute of Welding

South London branch: "Welding and the Draughtsman," by H. B. Merriman, 7 for 7.30 p.m., at 54, Princes Gate, London, S.W.7.

Institute of Metals

Birmingham local section: A Metallurgical Cocktail, by Marcus A. Wheeler, 6.30 p.m., at the College of Technology, Gosta Green, Birmingham.

Southampton Metallurgical Society

"Hydrogen in Steel," by J. Hewitt, 7.15 p.m., in the Engineering Block, Southampton University.

NOVEMBER 27

Institute of British Foundrymen

Falkirk section: "Business Administration," by J. Liddel, 7.30 p.m., at the Temperance Cafe, Lint Riggs.
Coventry section: Annual dinner/dance, 7 p.m., at the Hotel Leofric.

Manchester Association of Engineers

"Craft of Needle Making," by H. J. Parramore, 6.45 p.m., at the Engineers' Club, Albert Square, Manchester.

Institution of Plant Engineers

Birmingham branch: "Instrumentation in Industry with particular reference to Control of Temperature, Pressure Flow, Weight, etc.," by L. F. Cohen, 7.30 p.m., at the Imperial Hotel, Temple Street.

Latest Foundry Statistics

Steel Castings: Covering September, the October *Bulletin* issued jointly by the Iron and Steel Board and the British Iron and Steel Federation, reflects the improvement in trading conditions. Employment in steel foundries increased from 17,230 in August to 17,350 in September, whilst the average weekly production of steel castings rose from 3,900 to 5,100 tons, both figures being estimated. There is still much leeway to make up before the figure for the 1958 production is reached.

Copper-base Castings: The figures contained in the November *Bulletin* of the British Bureau of Non-Ferrous Metal Statistics show a welcome upsurge in the output of copper-base castings for September, when production reached 6,481 tons. The average monthly output for the first nine months of this year was just under 6,000 tons, the overall total being 53,959 tons.

Stereophotomicrographs—Production and Viewing

By J. Ferdinand Kayser, F.I.M., Assoc.Met.*

It is an acknowledged fact that the use of the microscope has paved the way to many important discoveries. Up to the present day, however, the majority of research workers have been content with monocular viewing of two-dimensional flat photomicrographs, to such an extent that some of them do not appear to have appreciated that they live in a three-dimensional world. This article is intended to show the high standards of viewing that may be achieved with the correct training.

The first microscope was made about 350 years ago and before the end of the 19th Century high-power microscopes were generally available and microscopy had its own special literature. Even to-day Carpenter's *The Microscope and its Revelations,* the first edition of which appeared in 1856 and the eighth and last in 1901, is well worth reading and many of the photomicrographs with which it is illustrated would be a credit to a microscopist working with a good modern microscope.

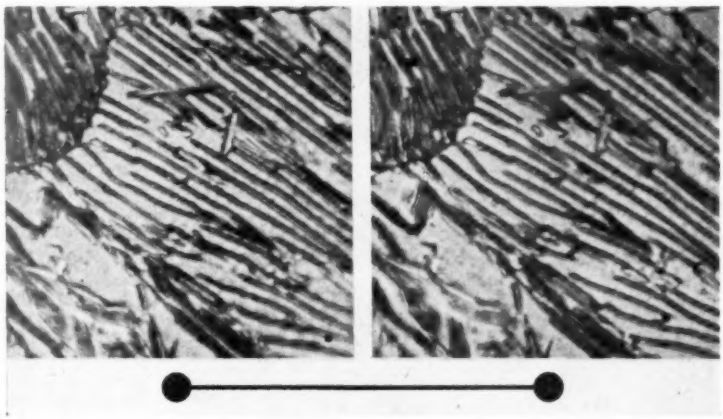


FIG. 1 (*left*).—*A flat photomicrograph which is difficult to interpret when standing alone. When viewed as a stereopair with the right-hand photomicrograph, however, a three-dimensional illustration is obtained. (See paragraphs at the end of this article for viewing instructions for this stereopair, and others which are given later.)*

Advantages of Stereophotomicrographs

Up to now few research workers have appreciated that, helpful as is a monocular microscope, a stereoscopic microscope is often far more revealing. Only a trained metallographer is able to interpret a flat photomicrograph like Fig. 1 (left), but the structure becomes quite clear when the two pictures are viewed as a steropair in three dimensions. Similarly, it is difficult to learn much about the shape of sand particles from flat photomicrographs, but stereophotomicrographs are truly realistic, and from them we may indeed make measurements of particle height, as well as of length and breadth. Many contributions made to the Institute of British Foundrymen in the past have dealt with the properties of moulding sands and sand moulds, but few of them have been illustrated with photomicrographs; most of the photomicrographs that have been published have left much to be desired. Even Davies[1] makes little use of them, and those in his book give little if any idea of the real shape of sand grains—not one of them shows the surface of a mould, a subject to which a whole chapter is devoted. The reason for this dearth of helpful photographs is probably that flat (two-dimensional) photomicrographs have been found to be inadequate, and authors have preferred to rely upon still more inadequate diagrams.

* Mr. Kayser's portrait and biographical notes were given on page 120 of the January 29 issue of the JOURNAL. He is on the staff of Gillette Industries, Limited.

Stereophotomicrographs

Uses of Stereophotography

The art of stereophotography commenced with the birth of photography, and in some fields it is used extensively. Sixty years ago Carl Zeiss produced a remarkable stereopair; using an equatorial telescope he photographed the moon in April 1896 and again in February 1900 and the two photographs, which are a perfect stereopair, have been used by A. W. Judge as a frontispiece for his book[2]. To-day, Zeiss-Aerotopograph, of Munich, manufacture a stereoplanigraph, for constructing maps from aerial photographs, that weighs 30 cwt. and costs about £15,000.

Stereophotomicroscopy in Research

Stereophotomicroscopy as a research tool is not generally used by metallurgical laboratories (although considerable use is made of low-power stereo-binocular microscopes, few of them are adapted for the necessary photography). It is probable, however, that these "binoculars" are chosen not because they give a stereoscopic view, but because it is more comfortable for trainees to use both eyes, and because they give a view of the object the right way up. The reason that stereophotomicrography is not used in research to the extent that might be expected from its extraordinary efficiency may to some extent be due to ignorance of its usefulness, but is probably due still more to its apparent difficulty of operation. There is, however, no justification for this, because stereophotomicrographs may be produced with a single-objective microscope as easily as normal flat photomicrographs. Furthermore, if the individual reproductions are not more than about 55 mm. wide, most people can learn to view them in three dimensions without the aid of a stereoscope.

Anaglyphs

A limited number of books on solid geometry, natural history and navigation have used anaglyphs for illustration purposes, but as they are in two colours (red and green) they are expensive to produce, and can only be viewed through a pair of spectacles with one green and one red eye-glass. The writer hence proposes to consider only stereophotomicrographs produced originally as black and white stereo pairs, which may be reproduced from half-tone blocks.

Proper Use of the Microscope

Stereoscopic photomicrography is a specialized branch of photomicrography, and the proper use of the microscope requires a high degree of knowledge and skill. Furthermore, in order to obtain stereopairs of the range that illustrate this article, professional photomicrographic equipment with means for vertical and oblique illumination is a necessity.

Author's Method of Making Stereophotomicrographs

Judge and others[2, 3] have adequately described the various procedures that may be used to make stereophotomicrographs. The writer prefers the method that entails using a monocular microscope; making first one exposure on one half of the plate, and then moving the object (to an extent that depends upon the camera extension) and making a second exposure on the second half of the plate. The writer usually uses a Vickers projection microscope (which has a fixed camera extension of 775 mm. when one uses an objective only, and 525 mm. when one uses an eyepiece), and moves the object sufficiently far to move the image 70 mm. To assist in this he has fastened two small cover glasses (70 mm. apart) to the focusing screen, and the object is set so that the image of a selected area coincides with one of them, an opaque screen being provided to shield the other half of the plate. One half of the plate is exposed and the dark slide is closed; the opaque screen is then moved to protect the already exposed half of the plate and the object moved by the mechanical stage until the image of the selected area coincides with the second cover slip; the second exposure is then made. The two images are reversed on the negative, so the print must be cut in two and the two halves transposed and mounted a suitable distance apart. They will then give the correct three-dimensional effect.

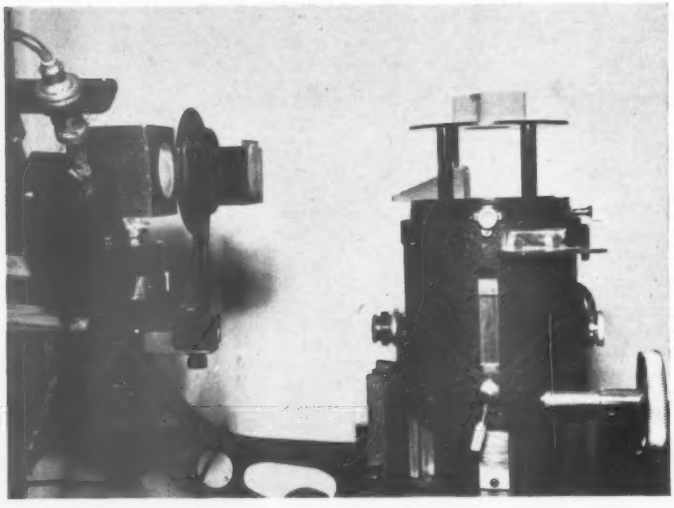


FIG. 2.—*Set-up for studying moulding sands, using a projection microscope with oblique illumination.*

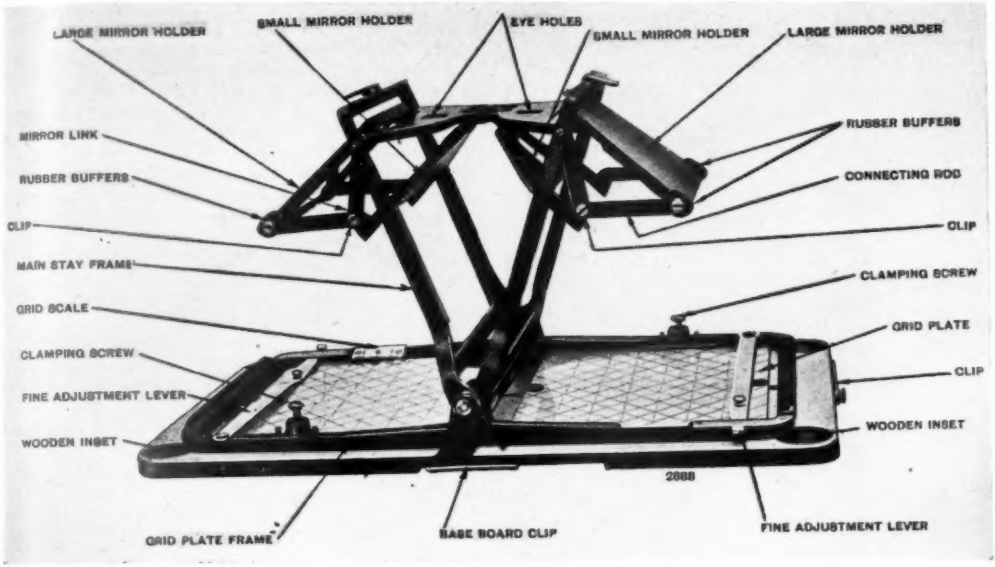


FIG. 3.—*Barr and Stroud (Z.D.4) topographical stereoscope, used for the detailed viewing of stereopairs.*

There is no difficulty in producing stereopairs at 1,000 diameters and upwards. Vertical or oblique illumination may be used, and the photographic procedure is as already described. Fig. 1, at 1,660 diameters, is typical of the results attainable.

Examination of Moulding Sands

Moulding sand is usually photographed at about 25 diameters, the preferred magnification depending upon particle size and the particular feature that is being studied. When using a Vickers projection microscope the writer prefers objectives having a focal length of 25, 50 or 75 mm. When mounted in a 62-mm. collar, and without an eyepiece, these give magnifications of 38, 20 and 12.5 diameters respectively, and the working distances are sufficiently great to allow for oblique illumination, the arrangement being as illustrated in Fig. 2.

Preparation of Samples

Samples of compacted sand may be prepared by cutting them out of the mass with a nail file or similar tool. In order to example the mould surface the sample must be placed directly on the microscope stage, but if one wishes to examine the internal arrangement of the sand particles it is necessary to prepare a fractured surface. The best way to do this is to shape the compacted sand into a small rectangular bar, file a nick around it, and then break it into two pieces.

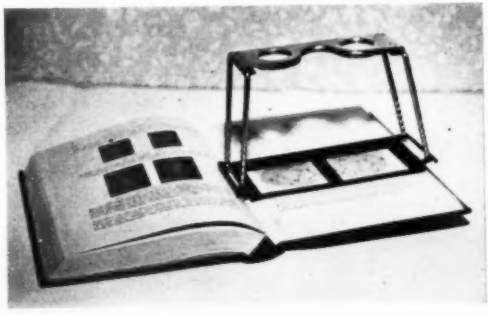
Mounting

Samples of loose (*i.e.* non-compacted) sand are best mounted on a base that will be discernible in the photomicrographs, and the writer uses strips (cut from plain white postcards) stuck on to glass microscope slides. The card is then coated with a thin layer of rubber adhesive, about 2 cc. of sand emptied on to it, and the slide shaken gently to dispose of non-adhering particles. A representative field, where the particles are not too closely packed, must then be chosen.

Detailed Viewing

The best results are obtained with oblique illumination; the angle of incidence is not critical but it should cast appreciable shadows. Stereophotographs should always be focused as sharply as possible, but if part of one of the pairs is somewhat out of focus, the three-dimensional view will be in focus nevertheless. For detailed viewing of stereopairs in the laboratory it is desirable to use a topographical stereoscope, such as a Barr and

FIG. 4.—*Folding stereoscope used when viewing prints on glossy paper.*



Stereophotomicrographs

Stroud Z.D.4 (Fig. 3), that was originally intended for the stereoscopic observation of pairs of aerial photographs. When used for that purpose the ground common to any pair appears in relief, and, from examination of the photographs and the instrumental movements provided, contours may be drawn on the photographs. For measurement of relative heights of ground features a floating mark system is provided, consisting of a pair of glass plates with grid lines etched upon their undersurface. Details of how to make such measurements are given by Judge[2], and also in the instruction booklet that accompanies the stereoscope. This apparatus may similarly be used for examining and evaluating stereophotomicrographs up to 175-mm. square.

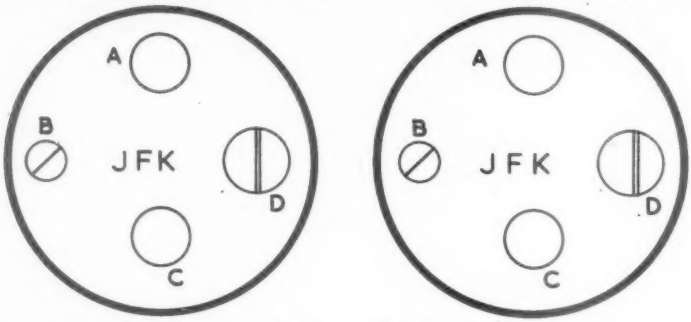


FIG. 5.—*Stereogram recommended by the author for training personnel to view stereopairs without aids.*

Stereopairs in Printed Publications

If stereopairs are required to illustrate reports with a limited circulation, prints on glossy paper may be viewed with a small folding stereoscope such as that illustrated in Fig. 4. Each photomicrograph may be up to 50-mm. square, and they must be mounted with their centres not more than 65 mm. apart. If the use of stereophotomicrographs in printed publications is to make headway it is a *sine qua non* that, when they are reproduced from half-tone blocks, one must be able to observe them in three dimensions with or without the use of a stereoscope. Judge points out that there is nothing worse in a stereo picture than the coarse dots of the half-tone screen as seen under the relatively high magnification of the stereoscopic viewing lenses. If, however, reproductions are printed on art paper, comparatively fine screens can be used, and the stereopairs can be satisfactorily viewed with the instrument shown in Fig. 4, which magnifies by approximately 1.7 diameters. Although this stereoscope is designed for stereopairs mounted 62 mm. apart, it is also suitable for viewing all Judge's 40-odd stereophotographs, which are mounted from 50 and 60 mm. apart.

FIG. 6.—*The author demonstrating a method of viewing without the aid of a stereoscope.*

Viewing Without Instruments

Revealing as stereoscopic photomicrographs are, it is improbable that they will be extensively used until it is realized that most people can acquire the knack of viewing them in three dimensions, without instrumental aids, if the centres of the individual prints are not more than approximately 55 mm. apart. The author acquired it in a few minutes but most people take one or two hours, spread over a period of two to three weeks. In order to view a stereopair without a stereoscope one must learn to diverge the eyes so that each eye sees a different one of two photographs, and then to merge the two together to form a three-dimensional image. In other words one must be able to see the right-hand photograph only with the right eye, and the left-hand photograph only with the left eye.

Simple Artificial Aids

First Method: To commence with, some form of simple artificial aid is often necessary, but after a little practice no difficulty is experienced in obtaining a three-dimensional effect by unaided direct viewing. Some authorities recommend that one should first practice viewing two laterally spaced

FIG. 7.—*Another method of learning to view without artificial aid.*

black spots, but the author recommends use of the stereogram (a line drawing constructed as a stereopair) illustrated in Fig. 5. A thick marginal surround encloses four circles marked A, B, C and D respectively, and the letters J. F and K. A and C are plain circles; B has one chord and D has two chords. When viewed in three dimensions A is located well above its circle; B is in the same plane as its circle; C is well below its circle and D is slightly below its circle; the chord of circle B is in the same plane as its circle; the left-hand chord of circle D is in the same plane as its circle, and the right-hand chord is below it; of the letters J, F and K, J is the foremost and K is the hindmost.

Second Method: Another method of learning to view stereopairs without the aid of a stereoscope is shown in Fig. 6. The card is about 200 mm. high, and is so placed vertically that each eye can see one marginal surround and its contents only. A variation of this method is illustrated in Figs. 7 and 8, where a horizontally located 40-mm. wide strip is used instead of a vertical card.

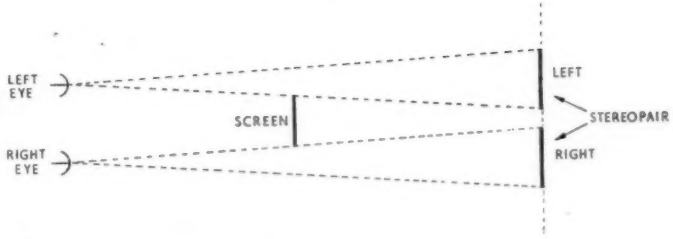


FIG. 8.—*Diagram showing the principle of the method illustrated in* FIG. 7.

Three-dimensional Image without Aid

By using either of the above methods one can soon learn to merge two images and see one three-dimensional image. After a little further practice it is possible to obtain the three-dimensional image without any aid, but one then sees three images;

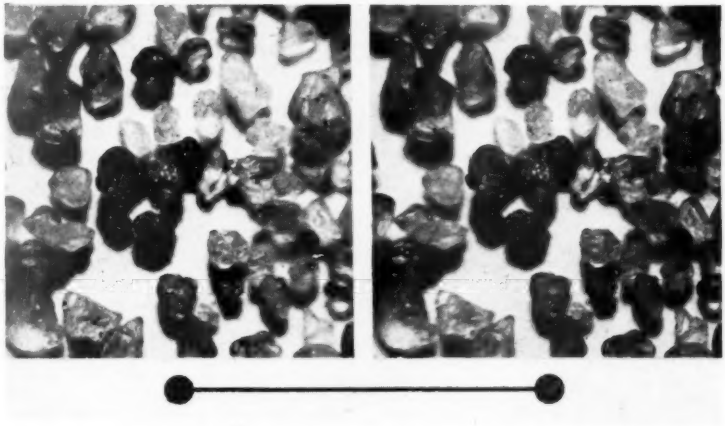


FIG. 9.—*Stereopair of core sand* (× 12.5).

Stereophotomicrographs

viz. a clear, centre image in three-dimensions, and two laterally disposed ghost images.

Conclusion

Judge deals adequately with print width and separation and the writer owes much to his book. The stereopair that illustrated a previous article in this JOURNAL[4] had a separation of 65 mm., but many people find this too great to permit of unaided viewing. The width of separation of the stereopairs and the stereogram that illustrate this present article is 57 mm., and in order further to assist unaided viewing each stereopair is provided with two black discs 57 mm. apart joined by a somewhat thick line. Fig. 9 shows a core sand magnified 12.5 diameters. Fig. 10 at 16 diameters shows a compacted core-sand, and was originally published (in the JOURNAL) with a separation of 65 mm. It is now reproduced with a separation of 57 mm., the print width having been reduced from 62 to 54 mm., and one can now more easily obtain the three-dimensional effect without significant change of perspective.

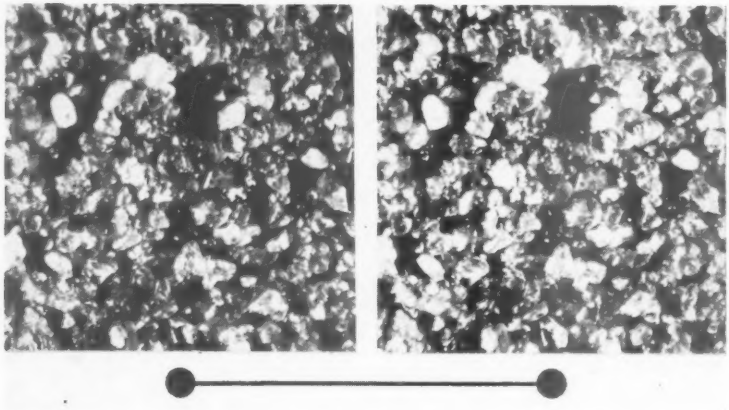


FIG. 10.—*Stereopair of a compacted core-sand* (× 16) *which was originally published in the* JOURNAL *with a separation of 65 mm. (see page 121, January 29 issue). It is reproduced here with a separation of only 57 mm., to facilitate viewing.*

REFERENCES

[1] W. Davies, *Foundry Sand Control*, 1950.

[2] A. W. Judge, *Stereoscopic Photography*, 1950.

[3] E. Cuzner, "Practical Stereoscopic Photomicrography by means of a Single-objective Lens," *Photomicrographic Journal*, 1932.

[4] J. F. Kayser, "Compaction of Sand," FOUNDRY TRADE JOURNAL, January 29, 1959.

Market for Outboard Motors

Formal opening on November 10 of a £1,000,000 plant at the Peterborough works of F. Perkins, Limited, subsidiary of Massey-Ferguson, Limited, marked the launching of an attack on world markets for marine outboard engines for commercial and pleasure purposes. The opening ceremony was performed by Mr. M. I. Prichard, managing director.

The engine range comprises 6 h.p. at £82 10s., 16 h.p. at £118, and 35 h.p. at £140—representing reductions of £16, £33, and £36, respectively, on previous quotations. Initial production will be at the rate of 40,000 units a year and the new plant should enable the company to gain a good foothold in the European market where demand is estimated at between 30,000 and 40,000 units a year. The demand in this country is now between 10,000 and 12,000 units.

There is also a strong demand from the Far East and Mr. D. F. W. McNair, a director and general manager of Perkins Outboard Motors, Limited, stated that orders from this and other areas, including the UK, were already encouraging.

Census of Production

Order prescribing the matters about which returns may be required for the Census of Production to be taken in 1960 for the year 1959 has now been made by the Board of Trade. The census is the first of a series of simple annual censuses for the years between the detailed 1958 census and the next detailed census. The Order, which operates from December 31, 1959, is the Census of Production (1960) (Returns and Exempted Persons) Order, 1959 (SI 1959, No. 1858).

Undertakings producing coal, gas, electricity, oil shale, crude or refined petroleum or shale-oil products are exempted from making Census of Production returns. For these, corresponding information will be obtained by the Ministry of Power.

The Census of Production to be taken in 1961 for the year 1960 will be similar to the previous census except that sampling methods will be employed. The questions asked will be similar to those for 1959—total value of goods sold and work done, stocks, and capital expenditure. The total value of stocks held outside the United Kingdom will not be required for 1960.

The French Foundry Association

*By P. R. Gordon, B.A.**

All countries of Europe now have foundry associations in one form or another, but they differ considerably in structure, in length of existence and in the functions they are required to perform. The French Foundry Association, the *Syndicat Général des Fondeurs de France*, is unique among the European Associations both in its highly integrated structure and the number of tasks it has to carry out. It may be of interest for those who are members of associations in this country to compare it with their own methods and scope of working.

Historical Notes

The first association of ferrous founders in France was set up in 1870. By 1897 it seemed clear to its members that, on the whole, this association had benefited them, and in that year the *Syndicat Général des Fondeurs de Fer de France* (General Association of French Ironfounders) was formed, the aims of the new *Syndicat* being to associate all the ferrous founders of the country in one body. Its offices were at the Place des Vosges in Paris, where the original association had its headquarters. This structure remained the same until 1921, when the Association was joined by founders specializing in non-ferrous work, and hence became representative of the foundry industry as a whole. The name was accordingly changed to *Syndicat Général des Fondeurs de France* (General Association of French Founders). By 1939, about 92 per cent. of the foundry companies in France were members. Since the war, this percentage has increased, and few foundries now are not members. With the increase in size and work, the *Syndicat Général* had to leave its offices in the Place des Vosges, and moved in 1949 to its present building at 2, rue de Bassano, a turning out of the Champs Elysées. It is interesting that, following the amalgamation of 1921, a large number of regional associations sprang up under the wing of the *Syndicat Général*. This is entirely the reverse of the process which occurred in the ironfounding industry in England, where regional and specialist associations existed before the central national one was organized.

Present Constitution

As constituted at present, the *Syndicat Général* has ten product sections and 11 regional sections. Certain of its functions—training, research and costing—are carried out both centrally and regionally, with the policy co-ordinated from the centre.

The product sections are:

Ferrous: pressure pipes and fittings,
light castings,
engineering and jobbing castings,
rolls,
malleable,
cast steel.

Non-ferrous: bronze and copper alloys,
aluminium and light alloys,
pressure-die-castings.
foundries tied to general engineering firms.

Training

As is general now in industry throughout Europe, great stress is laid in France in the foundry industry on efficient training at all levels. A well-trained work force is recognized to be essential if the industry is to compete on level terms with other processes and other countries. Much help is given by the government in the field of apprentice training, among others.

Apprentices

There are two ways for the apprentice to learn his trade in France—he can become indentured to a firm, which will allow him to do part-time study at a government-run school, in addition to giving him practical experience in the foundry, or alternatively, he can be apprenticed to the industry by attending full-time at an apprentice training centre run entirely by the government. One of these centres, at Bezons near Paris, was used for the practical tests in the European Foundry Apprentice Competition held in November last year. Its most ample facilities and excellent design made a great impression on foreign observers present. Firms which do not have an approved training scheme have to pay a training levy to the government of 0.04 per cent. of their wages bill. To become a skilled craftsman, the apprentice has to pass a national examination which ensures a certain standard of practical skill and technical knowledge. The *Syndicat Général* both assists private firms in training their apprentices, and also works very closely with the government department responsible for running the training centres. It also bears a measure of responsibility for the form and content of the craft examinations.

Technologists

The apprentice group is not the only one catered for; the *Syndicat Général* is also closely concerned with the training of foundry technicians and technologists. Here again it functions in two ways. Students of the right calibre are placed in technical colleges which run courses on foundry subjects, from whence they emerge with the appropriate qualification. In addition, the industry runs

* The Author is assistant to the press and publications officer of the Council of Ironfoundry Associations and is acting as liaison officer for the British foundry associations which are members of the European Committee of Foundry Associations.

the *Ecole Supérieure de Fonderie* (in some ways similar to the National Foundry College), where the future leaders of the industry are trained. The *Ecole* was founded in 1923, and the students who attend are qualified graduate technologists who have spent at least one year working in a foundry. Some 25 qualified foundry technologists graduate annually, many of them from overseas, since the *Ecole* is open to students from any country. Apart from technologists, a few technological trainees are admitted who, on passing their examinations, become qualified foundry technicians.

A further aspect of the *Syndicat Général's* training section is its concern with attempting to forecast future manpower requirements at the various levels of foundry employee, and to regulate entry to the industry. It is of course essential, considering the extent to which the government is involved in the training system, that the industry should be in a position to make its probable requirements known.

Technical Centre

Progress is not determined, however, solely by the men on the shop floor. Research must continue unceasingly, and this is done in France at the *Centre Technique des Industries de la Fonderie* (Technical Centre of the Foundry Industry) in Paris, which also has ten provincial laboratories. The work of the *Centre* and its regional laboratories is financed by the government by means of a tax levied on all foundries. The *Centre* is therefore an autonomous body, but naturally works in close harmony with the *Syndicat Général* There is no need to examine the work of the *Centre* in detail: it is sufficient to say that fundamental and applied research is carried out on a large scale, and that visits are paid to foundries, at the latters' request, to deal with problems arising in the normal course of working. A problem which has absorbed a great deal of time and effort over the past few years is that of dusts in the foundry, and their nature, whether harmful or otherwise. This work has assumed great importance because of the question of compensation to silicosis sufferers, and the aim behind it is to ascertain as accurately as possible the actual risk at any given work place, and then, of course, to eliminate the dangerous dusts as far as possible.

"Quality Labels"

An interesting function performed jointly by the *Centre* and the *Syndicat Général* is the operation of a system of "quality labels," which act as a sort of guarantee to the castings buyer. These labels are awarded to any foundry which turns out a consistent standard of casting, and the standard is maintained by a system of checks at varying intervals. It should be noted that the quality label does not afford a guarantee to the buyer in the sense of certifying that the casting will perform a specific function. It implies only that the foundry concerned is properly staffed and organized, and maintains proper and adequate controls over such matters as the chemical composition of the melt. It follows from this, of course, that the average casting produced by a "labelled" foundry is of good quality. The labels are also considered by the French to serve an additional purpose—that of public relations. It is felt that the existence of the system helps to convince the customer that the foundry industry as a whole is trying to give him good service. There also exists, under the ægis of the *Syndicat Général*, the *Association Technique de la Fonderie* (Technical Association of the Foundry Industry), which has as its principal aim the gathering of technical information on an international scale, and its editing and dissemination to members. The Association is a member of the International Committee of Foundry Technical Associations.

Costing

Much work too has been done by the *Syndicat Général* on the question of costing. This has been given particular impetus in the immediate post-war years by the chronic instability of the French economy, the rate of inflation having varied from a trot to a gallop. Cost matters are now dealt with through the Paris office, and through eight regional offices. The original aim in the costing sphere was to persuade foundries to adopt the uniform method of calculating foundry costs evolved by the *Syndicat Général* during the war, The reasoning behind the introduction of this uniform method was as follows: costing in the foundry industry is a very complicated business, owing to the fact that one foundry often produces a variety of castings; a large part of the costs arising are indirect, and difficult to attribute to a particular casting, or series of castings; it therefore happens that sizeable differences occur in the prices charged to customers by different foundries for identical castings, in spite of actually equal or near costs; this means the founder cannot tell which of his lines is showing a reasonable margin of profit.

"Cost Teams"

The uniform method found acceptance rapidly. Help is further given by the regional costing offices, who send out teams to visit foundries, on request, to assist in organizing costing systems. These cost teams first make a preliminary review of the costs of the foundry concerned, dividing the work into specified categories, then select the "work units" to be adopted, and establish a preliminary table of analysis of costs. The resulting information enables the basic cost characteristics of the foundry to be recognized, such as the tonnage poured, the tonnage of good castings, the values of the work units, the productivity of the workers, and the relationship between certain of the costs. Study of these characteristics allows discrepancies to be noted, and appropriate action is then taken. Following the first visit, the foundry is visited by the team every three months, and a similar analysis carried out to enable the foundry to compare its current performance with that of three months earlier. This system is popular with the foundries because, since the team visits the

foundry, no form-filling has to be done by the latter. The information given by the foundry is, of course, treated as confidential.

Comparisons are Possible

Yet a further advantage was discovered by the founders using the regional costing offices. This was that they could obtain comparisons with founders running similar foundries to their own, and establish with some degree of accuracy their performance relative to the rest of the industry in France. The system, therefore, provides a permanent incentive to founders to improve on their performance, and puts into relief the points where such improvement is most needed.

Other Activities of the *Syndicat*

In addition to the major activities outlined, the *Syndicat Général* indirectly assists in the negotiation of wages and conditions of work at the national level. It maintains close contact with the government and its departments, and collects statistics with its authority. Also under the control of the *Syndicat* are: a bank for the provision of medium-term loans; a legal company for assisting founders in disputes with customers; a service for assisting in foundry equipment programmes; a special transport department for settling disputes between founders and transport undertakings; a central purchasing agency for raw materials, and an export service. In short, the *Syndicat Général* provides a service for almost every aspect of a founder's work.

Conclusion

It can be said generally, therefore, that the *Syndicat Général* works on a much wider scale than the foundry associations in the United Kingdom, due to the fact that it is so highly centralized, so all-embracing as to membership, and wields such great authority throughout the industry. But it must be remembered that any trade association exists to do what its members require of it, and while a powerful central executive may suit the French, the same is not necessarily true elsewhere. Indeed, the great difficulty lies in assessing the true value of association work under any circumstance. Without making a most comprehensive investigation into the state of the foundry industries in Britain and France, and comparing them, and then estimating to what extent each has been helped or hindered by the greater or lesser degree of concentration of powers and scope of activities of the association concerned, no conclusions can be drawn as to the best form a trade association can take. Nevertheless, it remains thought-provoking to study other people's ideas on the subject, and helps to guard against self-satisfaction, the major obstacle to progress.

REDPATH BROWN & COMPANY, LIMITED—Mr. John D. Bolckow, assistant general manager, has been appointed a director. He served for many years in the bridge and constructional works of Dorman Long (Bridge & Engineering), Limited, before joining the Manchester works of Redpath Brown and later becoming manager of the company's Edinburgh branch.

Plaster in the Patternshop

By "Chip"

Jobbing shops have to adopt the most economical methods of producing one-off jobs and often the use of plaster-of-Paris as a patternmaking material helps considerably.

Some shops rarely, if ever, use this material but for many jobs it is ideal. For example, the sheet-metal shop of a certain engineering works was called upon to produce a large quantity of helical blades out of material ¼-in. thick. These were formed from metal discs 7-in. o.d., with a 2-in. dia. hole through the centre, the pitch of the helix being 10 in.

To form them of correct shape, a cast-iron jig was required. To carve a pattern for this from timber would be an expensive operation when expressed in patternmaking time, so one disc was formed as true as possible by hand and used as a means of producing the pattern for the jig.

The method adopted was to place a corebox 7-in. dia. and 10-in. high on to a board and locate a steel spindle 2-in. dia. in the centre. The helical blade was oiled to prevent sticking and placed over the spill so that one end touched the bottom board and the other came level with the top of the box.

Plaster-of-Paris was then poured in and after it had set this outer box was removed and the surplus plaster removed. After being given a coat of varnish the pattern was sent to the foundry together with the centre spindle, which was serrated at the lower end. This was rammed up in the mould and the metal forming the jig cast around it. After cleaning, this jig was ready for use and each blade made on it accurately followed the contour of the original.

Holman Group Expansion

An expansion of activities in the Midlands is projected by Holman Brothers, Limited, Camborne (Cornwall), manufacturers of compressed-air equipment. Based on Birmingham and occupying new premises, the Holman Midlands branch will have a large selling and servicing organization and will deal with all group products, *i.e.*, the products of the parent company, Holman Brothers, Limited, as well as of the subsidiary companies, Climax Rock Drill & Engineering, Limited, Maxam Power, Limited, Goodyear Pumps, Limited, and Dustuctor Company, Limited.

The branch is accommodated in a new building at Lightning Way, Alvechurch Road, West Heath, Birmingham 31. The premises comprise an office block with an area of 1,220 sq. ft. and stores servicing and workshop areas extending over 2,800 sq. ft. Further expansion has been taken into consideration in the design of the new building and it allows for the addition of a second storey to the office block and the expansion of the stores and works area by over 4,000 sq. ft.

The company has been actively engaged in the Midlands for over 70 years with a head office in Sheffield and sub-offices in a number of other centres. The decision to operate from new and larger premises in Birmingham has resulted from the rapidly expanding Holman and Climax business in this area.

Equipment & Supplies

Powder Dispenser for Molten Metal

A powder dispenser is now being marketed by British Oxygen Gases, Limited, Spencer House, St. James's, London, S.W.1, to introduce powders, ferro-alloys, etc., below the surface of molten metals. Hitherto, slag-making fluxes, alloying elements and structure-controlling additions have been mainly added to the surface of a molten bath of metal but sometimes this has resulted in slow rates of reaction, poor chemical efficiency, or low recovery of the added elements. In the treatment of cast-iron, both calcium carbide and graphite can be injected into the molten metal using a stream of nitrogen and an electro-graphite lance. Calcium carbide can be used as a desulphurizer and an addition of 1 per cent., made at a metal temperature of 1,400 deg. C., is expected to halve the sulphur content at any level. Graphite is added as a recarburizer and inoculant and gives a remarkably high recovery. The treatment can be carried out in suitable covered ladles, receivers or induction furnaces (see Fig. 1).

It is reported that one of the outstanding successes of the new technique has been the injection of mixtures of calcium carbide and graphite into iron melted from a high proportion of steel scrap. Normally such iron has a high-sulphur and low-carbon content. Not only can the composition be corrected by the carbide/graphite mixture, but a practice can be established which effects substantial economies in metal costs.

Current investigations in selected iron foundries and alloy steelworks indicate that the powder-dispenser may have a wider field of application. The introduction of desulphurizing and inoculating agents, either separately or together, should increase the scope of dispensing techniques in the manufacture of ductile iron. Other interesting applications will be in electric-furnace steelmaking for the introduction of lime for desulphurizing and also for adding certain ferro-alloys.

The dispenser has been robustly designed for service in foundries and melting shops, it is claimed. It has a capacity of 150 lb. of carbide or 100 lb. of graphite. These powders can be dispensed at rates of up to 30 lb. per min., with a nitrogen consumption of as little as half a cubic foot per pound of material added.

Ventilator Valve

Charlton, Weddle & Company, Limited, Manor Works, Newcastle 1, have designed a new valve, Ventseal, to replace the wood plug/tarpaulin which is in current use. The valve is a permanent fixture in the ventilation shaft, and does not affect the operation, fitting or removal of the actual cowl. Apart from occasional greasing and replacement of the sealing ring, it requires no maintenance whatsoever. Current production embraces cowl diameters from 10 to 36 in. inclusive. Where required, the complete installation can be separated from its coaming for maintenance purposes simply by removing the retaining bolts. Advantages claimed for Ventseal are: absolute water-tightness; no provision required for storage; easy fitting with minimum modification to existing coamings, and speedy operation in the event of emergency. Whilst designed principally for marine use, the valve has many applications on land, such as sealing off gases in furnace work, etc.

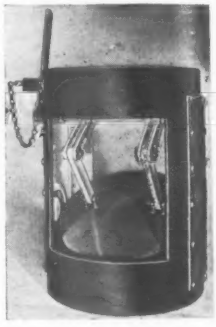


FIG. 1. — *Ventilator valve designed by Charlton, Weddle & Company, Limited, of Newcastle, to be a permanent fixture.*

Maintenance Scheme: Lancashire Dynamo Electronic Products, Limited, of Rugeley, Staffordshire, announce that they have introduced a planned maintenance scheme for customers in the United Kingdom. This scheme will involve four visits to the customer per annum, and will be undertaken on a two-year contract basis with annual payments.

Ferro-alloys: Engineering Services (Manchester), Limited, of Sough Road, Darwen, Lancs, have now commenced production of briquetted and packeted ferro-alloys. The former are to be sold under the trade name of "Cupobrix" and the latter as "Ladlepax." The company will soon be marketing a new type of briquette for cupolas.

FIG. 1.—*The BOC metallurgical-powder dispenser being demonstrated at a foundry in the London area.*

Moisture Control by Nuclear Device

Plutonium-239 is now being used to measure the moisture content of moulding sand at General Motors' Central Foundry Division plant in Danville, Illinois, USA. It is believed to be the first industrial application of this kind. The new technique is said to be solving that ancient problem of the foundryman—how to maintain a proper moisture content in sand moulds. The technique utilizes fast neutrons emitted from 32 gm. of plutonium mixed with beryllium powder and sealed in a stainless-steel capsule. Plutonium atoms disintegrate, emitting alpha particles which interact with beryllium to form the fast neutrons. These fast neutrons collide with hydrogen nuclei in water atoms in the sand, producing slow neutrons that can be counted electronically. The number of slow neutrons produced is directly proportional to the sand's moisture content.

Before the nuclear device was installed at the foundry, moisture control depended on an experienced operator's hand-test or "feel" of the sand; the amount of added water in the milling process depended on judgment. Sand samples from the hopper were spot-checked on laboratory equipment.

FIG. 1.—*The moisture content of the sand being tested is indicated on this large dial, which also shows the quantity of water needed to give the sand optimum value as moulding material.*

Automatic Operation

The new gauging is almost entirely automatic, a neutron-source pellet of plutonium-beryllium powder being lowered, through a stainless-steel tube, into the centre of each 30-cwt. batch of moulding sand in the hopper. The slower neutrons, which result from collisions with the hydrogen nuclei, are electronically counted by two neutron detectors in the tube carrying the neutron source. From this count, which is completed in about 45 sec., there is rapidly calculated: (1) percentage of existing water in the batch, and (2) the exact amount of water to be added to maintain a predetermined level. The moisture content is indicated on a large dial which also shows the quantity of water needed. The mill operator pushes a button to drop the sand from the hopper to mill, and with a second button measures the desired amount of water into the miller.

Meanwhile, the nuclear device resets itself, to begin counting slow neutrons in the next batch of sand. This checking of every batch reduces human error and ensures close limits of moisture content all the time. It is not a sampling method. The accuracy of this

FIG. 2.—*Slow neutrons generated in the sand are picked up by the neutron-counting tubes and calculated by the electronic device illustrated. The drum-hopper containing the source can be seen at the lower left.*

Moisture Control by Nuclear Device

sand moisture gauge is reported to be better than ±0.05 per cent. by weight over a range of 2.5 to 5.0 per cent. total moisture content.

Safety

Plutonium-239 is obtained under special nuclear material licence from the (US) Atomic Energy Commission, which authorizes the use of the plutonium/beryllium source under prescribed operating conditions. Very rigid safety precautions are taken by the General Motors' industrial hygiene section. Operating personnel are protected by regularly-checked film badges, thus keeping any radiation hazard well within safe limits. When not in use, the source is kept in a wax neutron-absorbing shield. Similar shielding surrounds the hopper, providing full protection when the source is in the sand. The sand is not contaminated during the moisture check, and is completely safe for handling thereafter.

This is believed to be the first AEC-authorized foundry application of plutonium, which was selected because of its long half-life of 24,300 years.

Board Changes

BERALT TIN & WOLFRAM, LIMITED—Mr. J. F. Chadwick has resigned from the board.

C. & J. HAMPTON, LIMITED—Col. C. R. Hodgson has been appointed deputy chairman.

IMPERIAL CHEMICAL INDUSTRIES, LIMITED—Sir Walter Worboys has resigned from the board.

CONSTRUCTORS JOHN BROWN, LIMITED—Mr. I. J. Bowler has been appointed a director.

ENGLISH STEEL CORPORATION, LIMITED—Admiral Sir Michael M. Denny has been appointed a director.

FERRANTI, LIMITED—Mr. E. Grundy, Mr. J. Prince, and Mr. O. M. Robson have been appointed directors.

UNITED GAS INDUSTRIES, LIMITED—On medical advice, Mr. P. P. MacDiarmid is to relinquish his seats on the board and the boards of those subsidiaries of which he is a member.

AUSTRALIAN IRON & STEEL, LIMITED—Mr. Cecil Hoskins has resigned from the board and also as one of the company's representatives on the board of Southern Portland Cement, Limited, having reached the agreed retiring age.

ARTHUR BALFOUR & COMPANY, LIMITED—Mr. L. Wright and Mr. M. R. Balfour have been appointed assistant managing directors. Mr. W. H. Eyre has been appointed a special director. Mr. F. H. Balfour has requested relief from active executive duties at the year-end on account of ill-health. He will remain on the board.

Mr. F. P. ASHLEY has been appointed managing director of the Carrier Engineering Company, Limited. Mr. A. P. FOWLER has relinquished his position as joint managing director, having reached retiring age, and has been appointed vice-chairman. Mr. H. L. GROOM has resigned as joint managing director and a director and has accepted the office of chairman and managing director of Carrier Construction Company, Limited, a subsidiary.

Law Cases

Wrong Lifting Method

Stating that one could understand a system growing up where men engaged on piecework used one operation instead of two to save time, Judge E. G. H. Beresford, awarded Mr. Joseph Herbert Whitmore, a Smethwick moulder, £158 16s. 9d. damages with costs for an injury to his foot. The plaintiff had been in the foundry industry for more than 40 years, though only three months with the defendant company, the Birmingham Aluminium Casting (1903) Company, Limited.

The accident occurred in May, 1957, when a 4½-cwt. moulding box was dislodged from a pile and fell on to the plaintiff's foot. It was stated that the boxes, which were lifted by a crane, had two slings attached to one end and were then lifted vertically by a crane so that they could be turned over, on top of the stack preparatory to the filling operation. The correct way was to attach slings to all four corners before the box was lowered to the floor, turned over, then hoisted again.

Woman Operator Loses Action

Judge Norman Carr, at Stourbridge County Court, dismissed an action brought by Mrs. May Dunn (51) against Richard Thomas & Baldwins, Limited, for damages for personal injury following an accident at the company's Brockmoor Works. He gave judgment for the firm with costs.

The plaintiff, a shears operator, was injured when an up-ended stillage fell on her foot. The defence denied negligence and claimed that Mrs. Dunn failed to look where she was going and collided with the stillage causing it to fall over. She had had no regard for her own safety and failed to wear safety boots which she knew were available.

The judge stated that in his view no one connected with the firm could be held responsible. It seemed to him that it was an unfortunate accident in which the plaintiff herself came into contact with the stillage and knocked it down.

Massey-Ferguson Organization

A new form of organization for its world-wide activities and the creation of a corporate management group which will devote its attention to the company's operations in world markets is announced by Col. W. E. Phillips, chairman and chief executive officer, and Mr. A. A. Thornbrough, president, of Massey-Ferguson, Limited, agricultural machinery manufacturers, of Toronto, Canada.

These operations have now been concentrated into five centres, each headed by a general manager and identified with North America, UK, France, Germany, and Australia. The new group of corporate executives will now be free to assist the president in all operations of the company.

Executive control of UK operations, which include the large tractor and engine manufacturing facilities acquired this year, will for the time being be assumed by Mr. Thornbrough and its management organization plan will be announced shortly. Massey-Ferguson Holdings, Limited, will continue to carry out the necessary financial and statutory responsibilities in regard to UK subsidiaries. Mr. H. W. Waite, director of finance, Massey-Ferguson Holdings, becomes assistant treasurer (Europe) of the parent company.

BIR Congress

The *Bureau International de la Récupération* (BIR) held its annual congress last month at the Rheinterrasse, in Düsseldorf, under the chairmanship of Dr. J. Husler (Switzerland), president of the BIR management committee.

The congress was of particular interest since the enforcement of the European Common Market and the establishment of the European Free Trade Area may both have a repercussion on the international flow of waste trade materials and also in the field of non-ferrous scrap metals. The study of this which has been made by an OEEC committee might lead to the adoption of a more liberal attitude concerning the restrictions which affect international exchanges of these materials between OEEC member nations.

Scrap-iron and Steel Section

From the discussions of the scrap-iron and steel section, it appeared that most of the delegates considered that owing to the favourable situation in the steelmaking industry, selling conditions for scrap-iron and steel were satisfactory. A very interesting survey of the situation in America was given by delegates from that country, who explained why prices remained stable despite the strike of American steelworkers and the developments which may ensue. Concerning the situation in Western Germany, it was hoped that a uniform free exchange area might be created some time in the future.

Non-ferrous Metal Section

The meeting of the non-ferrous metal section was attended by 26 delegates representing nine countries including, for the first time, a delegate from Morocco. Mr. Doisy, general delegate, who gave a report on the relationship of the non-ferrous committee with the OEEC, said that since the BIR non-ferrous section was now recognized as a consultative body and had been invited to attend meetings of the OEEC non-ferrous committee, he had been able to give a report to the OEEC committee on the non-ferrous scrap trade in the countries concerned. It was felt that this contact would help considerably in the efforts which the BIR and member countries were making for the liberalization of the non-ferrous metal trade.

The technical committee reported that it had now prepared a list of additional specifications which it was proposed to add as a supplement to the N.F.58 list. These were being considered by different countries for approval.

It was announced at the conclusion of the congress that the next congress and general assembly of BIR will take place in London from May 31 to June 2, 1960.

Industrial Holidays

Because of growing resentment against the inconvenience of the peak holiday period being tied to the traditional August Bank holiday, the Industrial Welfare Society has organized a one-day conference at its headquarters, Robert Hyde House, 48, Bryanston Square, London, W.1, on December 8, to enable industrial and commercial executives to consider what changes are needed in established holiday practices and how they might be achieved.

Holiday pay costs most firms the equivalent of one sixth of their wages bill and they are seeking ways in which resulting production delays could be reduced and employees could enjoy their holidays.

Notes from the Branches

Slough Section

On Tuesday, October 27, 1959, the Slough section of the Institute of British Foundrymen held their monthly meeting in the Lecture Theatre at High Duty Alloys, Limited, Slough. The section president, Mr. S. J. Williams, welcomed the lecturer for the evening, Mr. J. L. Francis (Foundry Services International, Limited), who then gave a paper entitled "Some Casting Defects —their Cause and Cure."

Introducing his subject, Mr. Francis stressed the fact that he wished to avoid creating the impression that castings were more unreliable in soundness than components constructed in other ways, *e.g.*, forged, rolled etc. The main object of his paper, he said, was to illustrate the many techniques which could be used to produce castings giving the utmost satisfaction and service. He pointed out that many defects found in castings could be caused by more than one adverse factor, some of these factors being common to more than one type of defect—in fact, the combination of two or more influences was often responsible. Mr. Francis was emphatic in stating that control over all variables in the foundry should be exercised at all times, if it was hoped to get continued runs of sound castings. Too often he had found foundries leaving things to chance, and by doing so getting a very high incidence of "wasters" during peak periods of production. In these cases it was impossible, without the proper control, to pinpoint the causes of the wastage.

Mr. Francis continued by showing a number of slides of various types of casting defect, and giving his opinion as to the reason for the defect, and a possible cure for each particular problem. Examples of holes, cavities and porosity due to a number of factors were shown and explained. His use of the blackboard to explain various points was excellent, and greatly helped the uninitiated to understand what exactly he was driving at. Unfortunately, time did not permit the complete paper to be read, which was a great pity, since Mr. Francis had many more examples to show. However, the chairman felt that it was essential that some time should be allocated to discussion, and therefore with regret had to ask Mr. Francis to conclude his talk.

The discussion proved that the members present had learnt much from the paper, and were eager to know more. In answering the many and varied questions Mr. Francis was greatly assisted by Mr. S. Rogers, the joint author of the paper.

Mr. Wood, in proposing the vote of thanks to the authors for their excellent paper, felt that it was appropriate to mention the "Atlas of Casting Defects" published by the Institute, which was available to all members. Mr. H. J. Proffitt was very pleased to second, and in doing so wondered, as he put it, "how many such fine specimens of 'wasters' were locked away in the archives of the foundry industry."

International Foundry Dictionary: It is anticipated that the "International Foundry Dictionary," which is being compiled by a sub-committee of the International Committee of Foundry Technical Associations, will be published in about 18 months time. The Dictionary initially will be in eight languages, and the cost is expected to be about 4,000 French francs (approximately £3). To enable the publishers to form a reasonable estimate of the number which will be required, those from the UK wishing to obtain copies should send their names immediately to the secretary of the Institute of British Foundrymen, at 14, Pall Mall, London, S.W.1.

American Letter

Fluidity of Aluminium Alloys*

The difficulty of producing thin-section castings (less than $\frac{1}{8}$ in.) in aluminium is due primarily to inadequate "fluidity." This may be improved in practice, however, by judicious choice of alloy composition, and by superheating the melt. A test mould (see Fig. 1) was developed by the authors for determining the exact fluidity of alloys under various conditions of heating, etc. Factors investigated were: (1) The effect of pouring temperature and alloy composition on the fluidity of aluminium-copper alloys; (2) the relative fluidities of several commercial aluminium alloys, and (3) the effect of various mould coatings on the fluidity of aluminium alloys. The fluidity of aluminium-copper alloys containing from 0 to 20 per cent. copper is shown in Fig. 2. It will be seen that, up to about 1 per cent. copper, fluidity decreases, but increases with further alloying. At constant superheat, increasing copper contents (above 1 per cent.) increase fluidity only slightly, whereas at constant temperature the improvement in fluidity with increasing alloy addition is much more pronounced.

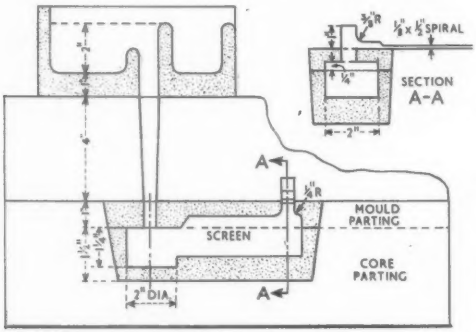


FIG. 1.—*Test mould for the determination of alloy fluidity. The distance travelled by the various metals along the $\frac{1}{8}$ by $\frac{1}{2}$-in. spiral, before solidification, was measured.*

Mould Coatings

During the later stages of the research programme, as increased emphasis was placed on the study of mould coatings, it became evident that a test casting with two identical spirals attached to a single runner was desirable—this arrangement permitted comparison of mould variables in a single casting. The effects on fluidity of three forms of carbon used as mould coatings were examined, these forms being lamp black (from an oxyacetylene torch), activated charcoal and graphite. It was discovered that the activated charcoal, applied in a finely divided form in controlled thicknesses by suspending the carbon particles in ether and then spraying the mould, gave an improvement in fluidity of about 40 per cent. Hexachloroethane, which is a chlorinated hydrocarbon of composition C_2Cl_6 which sublimes at 560 deg. F. (293 deg. C.), proved very successful when used as a sprayed mould coating. The improvement effected was 180 per cent. at 677 deg. C., and greater than 110 per cent. at 760 deg. C., as can be seen from Fig. 3. In this test a limited number of alloys were chosen to represent the wide sand-cast range. Table 1 summarizes the results obtained with five different commercial alloys (the two centre columns show the distance travelled along the spiral by the alloy before solidification).

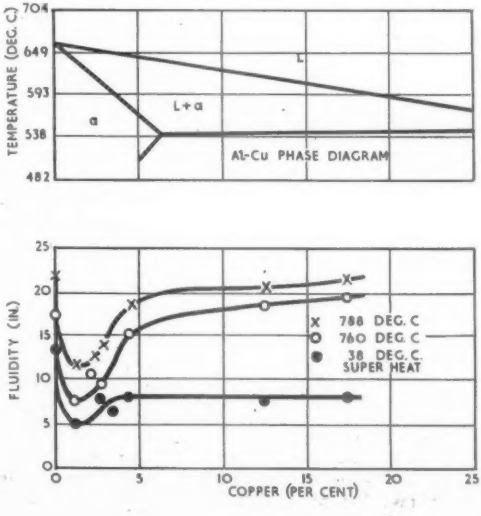
TABLE 1.—*Effect of Hexachloroethane Mould Coating on the Fluidity of Various Commercial Alloys and Pure Aluminium (using the Double-spiral Test)**

Alloy.	Pouring temp. (deg. C.).	Uncoated spiral (in.).	Coated spiral (in.).	Increase due to coating (per cent.).
195 Al-4.5 cu	757	13.0	>28.0	—
	715	6.3	17.9	184
	677	3.8	11.0	190
356 Al-7 Si-0.3 Mg	732	15.5	22.1	43
	715	11.9	22.1	86
	675	7.2	14.1	96
220 Al-10 Mg	744	17.1	>28.0	—
	711	10.7	22.9	114
	678	10.3	16.5	60
40E Al-5 Zn-0.5 Mg-0.5 Cr	732	8.2	13.2	61
	704	7.2	13.2	83
	676	4.0	6.6	65
99.9 Al	758	18.7	>28	—
	715	13.8	20.4	46
	671	9.9	16.9	71

* Symbol (>) indicates that the metal ran the complete length of the spiral (28 in.). Therefore these figures represent minimum values.

To ensure that these results would apply in actual foundry practice, they were checked with a test casting. This consisted of two $\frac{1}{8}$-in. plates, 10 in. wide by

FIG. 2.—(*top*) *Al/Cu phase diagram;* (*bottom*) *graph of fluidity* versus *per-cent. Cu, at various temperatures.*



* Synopsis of a paper, by M. C. Flemings, H. F. Conrad and H. F. Taylor, presented at the AFS Congress in Chicago, in April. Mr. Flemings is assistant professor of metallurgy, Mr. Conrad is research assistant, and Mr. Taylor is professor of metallurgy, in the Department of Metallurgy at the Massachusetts Institute of Technology, Cambridge.

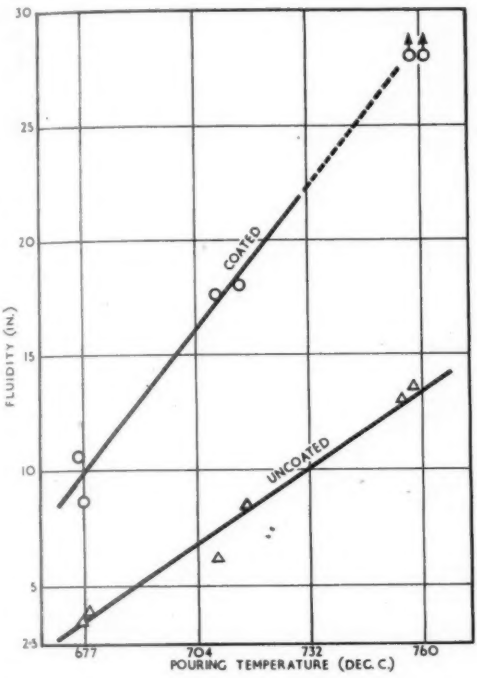


FIG. 3.—*Graph showing the improvement in alloy fluidity effected by a mould coating of* 0.003 *in. of hexachloroethane (sprayed on). A double-spiral test mould was used to obtain these results (one spiral being uncoated), the alloy being Al—4.5-per cent. Cu.*

12 in. long, placed on opposite sides of a large runner and filled from the same pouring basin at the same time as the spiral castings. Ample proof was obtained that the beneficial effect of this coating can be exploited with commercial-type castings.

New High-top-pressure Blast-furnace

The development of a blast-furnace with a top pressure of 40 lb. per sq. in., or nearly four times that of any existing American blast-furnace, has been announced by Dr. W. C. Rueckel, vice-president and general manager of Koppers Engineering and Construction Division. It is estimated that the new blast-furnace will produce twice as much pig-iron as a furnace of comparable size operated at the normal pressure of two lb. per sq. in. Thus, the output of a blast-furnace with a hearth diameter of 28 ft., now averaging perhaps 2,000 tons per day at normal pressures, would be in the range of 4,000 tons per day at 40 lb. per sq. in. top pressure. To erect one of the new furnaces, requires capital investment of only 20 to 25 per cent. more than existing types.

In compensation, labour costs to produce a ton of pig-iron in the new furnace are reduced by 30 to 35 per cent. One of the principal features of the new equipment is the necessity for doubled cast house facilities, including two tap holes, two mud guns, and duplicate runner systems.

Publications Received

BSFA Bulletin, Vol. 2, No. 10. Published by the British Steel Founders' Association, Broomgrove Lodge, Broomgrove Road, Sheffield, 10.

This *Bulletin* is devoted to pattern problems, and is of distinct interest to master patternmakers as it contains over 20 pictures dealing with coreboxes and patterns. The equipment shown is constructed from wood, metal, and epoxy resin. In connection with the the last named process, a detailed description is given of the preparation of this type of pattern. On page 19, there is a good common-sense chapter on "Some Advantages of Steel Castings over Welded Structures," wherein the patternmaker plays an important part. In the next section dealing with the CO_2 Process, it is pointed out that the "mould or core is made in a box using the *appropriate* type of pattern." The word "appropriate" is italicized because the reviewer, when visiting the works of a master patternmaker recently, was told that patterns for use with the CO_2 Process need special care in their preparation. For instance, at those works a special shop had been built and equipped in a dust-free area for the painting of patterns for use with CO_2-bonded sand. It would seem, therefore, that the word 'appropriate' as used in the brochure was deserving of some elaboration. The *Bulletin* makes an interesting and useful contribution on a subject of basic interest to founders.

IWS Supervisor's Handbook and Diary, 1960. Published by the Industrial Welfare Society, 48, Bryanston Square, London, W.1; price 5s.

Into 64 pages, printed on thin paper, there has been assembled a mass of information of undoubted utility to supervisors—an elastic word which in practice seems to include those people ranging between foremen and departmental managers. There are notes on income tax, safety, canteens, the Factory Acts, and many other subjects. The Handbook also contains a list of suffixes and qualifications, etc.; here, it is distressing to find the Institute of British Foundrymen is omitted.

Facts and Figures about British Railways. Published by the British Transport Commission, 222, Marylebone Road, London, N.W.1; *gratis* on application.

Railways have quite a fascination for a multitude of people other than train spotters, whose activities are still a mystery to the reviewer. Whilst the overall picture of the financial side of railway operations is not exactly rosy, it would now appear from this publication that the situation is improving. This year's statistics reveal that the railways are now using more oil than coal, as the increases in the price of coal since nationalization have priced it out of the market.

New Headquarters for British Engine. Issued by British Engine Boiler & Electrical Insurance Company, Limited, Longbridge House, Manchester 4.

This well-produced brochure describes and illustrates the recently-completed new building designed to house the staff of the British Engine Boiler & Electrical Insurance Company under really modern conditions.

New Works for H. C. Hopper (Norwich), Limited —Amendment

Attention has been drawn to ambiguity in the account, published last week, describing rebuilding which is being carried out for H. C. Hopper (Norwich), Limited. It should have been pointed out that it is only the first part of the scheme which is to cost £35,000; the complete expansion programme of the firm is expected to cost £150,000.

Factories Act, 1959

From December 1 the Minister of Labour will be under a statutory duty to promote health, safety and welfare in factories and other places subject to the Factories Acts, by collecting and disseminating information, and by investigating or helping others to investigate problems in this field. This is one of the results of an order—the Factories Act, 1959 (Commencement No. 1) Order, 1959*—made by Mr. Edward Heath, Minister of Labour, and published last week. This Order appoints December 1 as the date on which about half the provisions of the Factories Act, 1959, will come into operation, and February 1, 1960, as that on which four other provisions will become effective.

The Order carries out the intentions of the previous Minister, Mr. Iain Macleod, with the one small exception that the operative date for section 7, relating to precautions against explosive dust, is postponed until February 1, 1960; this will allow some employers time to instal new plant to secure compliance with the section. The Order also brings into operation on December 1, the section providing for higher maximum fines for offences under the Factories Acts. Among other sections dealt with in the Order are those requiring floors, passages and stairs to be kept free from obstructions or substances likely to cause persons to slip; and replacing the Minister's powers, under Defence Regulation 59, by new powers to grant exemptions from provisions regulating the hours of work of women and young persons.

The provisions which will be brought into force by the Order on February 1, 1960, apart from section 7, are those which strengthen existing precautions against dangerous fumes or lack of oxygen, those for making workplaces and the means of reaching them safe, and those for the protection of people working near or above containers holding dangerous substances. The Minister intends to bring into operation at the earliest practicable date the remaining provisions of the Act relating to fire precautions, first aid, washing facilities, etc.

* H.M. Stationery Office, S.I. 1959 No. 1877 (C.15); price 3d. net.

Works Visits

The writer has participated in many works visits, and perhaps the worst type is where the whole of the guests —sometimes numbering more than 100—follow the works manager or other executive like a flock of sheep. More enlightened firms give the visitors a map of the route to be taken together with other useful information, or again the management will use a loud-speaker system to tell the guests on arrival something of the history of the firm and what to specially look out for.

On the occasion of a recent National Works Visits Day, one of the firms, Le Grand Western Foundries, Limited, presented each guest with an illustrated four-page leaflet bearing a message of personal welcome from Mr. A. Talbot, director and general manager, and some notes about the history of the company and its present-day activities. It also carried a picture of the firm's new railway poster. The idea behind this novel gesture of welcome combines a courteous action with a modicum of decorous company publicity.

Technical Education

Speaking in Birmingham on November 7, Mr. H. J. Shelley, formerly H.M. Chief Inspector in the technical branch of the Ministry of Education, said that at present neither side of industry makes sufficient effort to see that apprenticeship ensures adequate training. Certification for craftsmanship was a matter which needed urgent consideration, Mr. Shelley added. He thought that one section of examining procedure which should be regionalized was the Ordinary National Certificate. "In the field of engineering at least it is becoming too remote—in its administration at national level—from the work of the colleges" he said and urged that it would be simple to reorganize it as a regional scheme while retaining national recognition. On the Colleges of Advanced Technology, Mr. Shelley said he hoped that these advanced colleges would not take up a position of splendid isolation.

His opinion was that there would still be an increasing demand for part-time courses at all levels.

Rayburn Window-display Competition

The accompanying illustration shows the representative panel of judges sharing a joke whilst judging the entries in the Allied Ironfounders' Rayburn National Window Display Competition. Left to right are Mr. V. C. Faulkner (Editor, FOUNDRY TRADE JOURNAL); Mr. Paul Reilly (chairman of the panel and deputy director of the Council of Industrial Design); Lady Casson, A.R.I.B.A. (tutor, School of Interior Design, Royal College of Art); Mr. A. Heath, F.S.I.A. (display consultant and principal, Cambridge School of Art), and Miss M. R. Schofield (general secretary of the Women's Advisory Council on Solid Fuel).

Bristol Student's Success

It will be with great satisfaction that members of the foundry industry in the West Country will learn of the recent examination successes of Mr. J. L. May of Bristol. Mr. May, who is employed by Thomas Richards & Sons, Limited, of Bristol, entered that company as an apprentice in 1954 and during his period as an apprentice attended a full course of instruction at the National Foundry Craft Training Centre at West Bromwich. Attending part-time studies at the Bristol College of Technology, Mr. May in 1957 obtained an Ordinary National Certificate in Mechanics of Fluids with a distinction in applied mechanics. This success was followed up in 1958; when taking the City and Guilds of London Institute's intermediate examination in foundry practice Mr. May obtained a first-class certificate, gaining more marks than any other candidate, and thereby winning the C. H. Wilson prize (presented by the Institute of British Foundrymen) and the City and Guilds bronze medal.

Recently Mr May has been advised that in this year's C. & G. final examination in foundry practice, he was again the most successful candidate, being awarded a first-class certificate and the Buchanan silver medal, presented by the Institute of British Foundrymen.

Mr. May's successes will no doubt be shared by colleagues at the foundry, at the Bristol College of Technology (which posesses excellent facilities for the teaching of foundrywork, including a well-equipped model foundry) and in the Institute of British Foundrymen (of which Mr. May is a member).

Dip. Tech. Courses

Compared with a year ago, there are now nearly twice the number of students taking courses leading to the Diploma in Technology, it was stated by Mr. A. A. Part, Under-Secretary in charge of Further Education at the Ministry of Education, when speaking to industrialists at a lunch-time conference at the Bradford Institute of Technology. Mr. Part said that figures, provided by the National Council for Technological Awards, revealed that the total for this year was 3,320 compared with 1,786 last year; over 1,400 of the students were in their first year. The National Council had approved 29 new courses in the year, bringing the total number of courses up to 84. He went on to say that the figures also showed that the Colleges of Advanced Technology were advancing rapidly, and these colleges (including the ninth, Bristol, which is to be designated next September) accounted for three-quarters of all Dip. Tech. students. The total number of advanced students taking full-time and sandwich courses of all kinds had increased from 4,500 in 1955-56 to over 7,100 in 1958-59, and plans so far approved should enable this total to be increased to about 12,000.

Confused Initials

In common parlance one tends to use the initials representing the names of research and manufacturers' associations instead of repeating the full name on all occasions. That this can lead to confusion was shown in last week's issue when reporting the Council elections of the British Steel Castings Research Association, on page 467. It was stated that the stainless-steel gavel presented to Mr. C. H. Kain was designed and made at the BISRA research station. In fact, of course. it was made at the castings research association *i.e.*, BSCRA.

Pension Scheme—Contracting Out

Regulations lay down Procedure and Conditions

The first group of Regulations* dealing with the arrangements for contracting employees (who belong to occupational schemes) out of the new graduated retirement pension scheme have now been made by Mr. John Boyd-Carpenter, Minister of Pensions and National Insurance, and took effect from last Friday. They are naturally of interest to founders who have their own pension schemes as they deal with the procedure for contracting out and the conditions under which occupational schemes may be recognized for this purpose.

The National Insurance Act, 1959, introduces into national insurance a measure of graduated contributions and retirement pensions related to employees' earnings but allows employees in occupational pension schemes, which satisfy certain conditions, to be contracted out. It is planned to start the collection of graduated contributions in April, 1961.

There are two main tests which an occupational pension scheme must pass before it can be used as the basis for contracting out. First, it must provide a pension at least equal to the maximum graduated pension which could be earned in the National Insurance scheme over the same period of service; and second, it must be a "recognized superannuation scheme," being financially sound and with its equivalent pension rights properly secured. The Act also provides machinery for the preservation of these equivalent pension rights on change of employment.

A Registrar of Non-participating Employments will decide applications for contracting out certificates and will issue certificates where applications are allowed. Mr. N. Leach, an Under Secretary at the Ministry, is being appointed Registrar and he is now available for discussion with any employer considering contracting out at 10, John Adam Street, London, W.C.2.

Notices to employees, trustees, etc.

Employers intending to apply for a contracting out certificate are required to give at least one month's notice to the employees concerned, either by individual written notices or posting up notices at the places of employment, etc., and at least one month's written notice must be given to the trustees, insurers and committee of management, if any. The Registrar has to be satisfied that the employer has taken reasonable steps to notify those concerned. Where after notice has been given representations are made against contracting out, the Registrar can defer the issue of certificate to allow time for further discussion between the employer and his employees.

An employer has a right of appeal to an Adjudicator against any decision of the Registrar, and the Registrar may also refer questions to the Adjudicator instead of determining them himself. Mr. Henry Salt, Q.C., has been appointed to fill this position.

In the event of an employer's application to contract out being successful and the Registrar grants a certificate of non-participation, graduated contributions will not be paid for employees covered by the certificate. Instead, the present flat rate contributions will continue to be paid for the flat rate benefits.

* The National Insurance (Non-participation—certificates) Regulations, 1959, S.I. 1959 No. 1860, price 5d.; and the National Insurance (Non-participation—Benefits and Schemes) Regulations, 1959, S.I. 1959 No. 1861, price 3d.; both of which may be obtained from H.M. Stationery Office or through any bookseller.

IBF Foundry Foremen's Course

A training course for foundry foremen has been organized by the Institute of British Foundrymen to take place from March 17 to 19, 1960, at the Hotel Majestic, Harrogate, Yorks. The course will comprise five lectures as follow: "Overheads and Production Costs," by Mr. A. Kirkham, B.Sc. (of the David Brown Companies at Penistone); "The Foundry Foreman's influence on Maintenance," by Mr. W. D. Ford (Morris Motors, Limited); "The Foreman's Rôle in training Apprentices," by Mr. A. Talbot (Le Grand Western Foundries, Limited, Southall, Middlesex); "A Foundry Health Problem, or the Dust, the Devil, and the Doctor," by Dr. Gillies MacBain (Birmid group of companies); and "Automation," by Mr. G. C. B. Lamb (Ley's Malleable Castings Company, Limited).

Accommodation for 200 is available at the Hotel Majestic and the course will be self-contained unless this number is exceeded, in which case it will be necessary for late applicants to stay at other hotels. The charge for accommodation at the Hotel for the full period of the course, including tea on Thursday, March 17, and luncheon on the Saturday, is £5 5s., there being a reduction of 10s. where two participants are prepared to share a twin-bedded room. Bathrooms will be charged extra at 7s. 6d. per night. For those not attending the whole period of the course the charge will be 35s. for bed and breakfast, plus the cost of any additional meals; 10 per cent. will be added to bills to cover gratuities. Forms of application to attend the course may be obtained from the Institute of British Foundrymen at 14, Pall Mall, London, S.W.1, to whom they should be returned not later than February 1, 1960.

Metal Castings for USA

The Export Services Branch of the Board of Trade, Lacon House, Theobalds Road, London, W.C.1, record that the Tait Manufacturing Company, 500 Webster Street, P.O. Box 1,045, Dayton 1, Ohio, is interested in receiving quotations from United Kingdom manufacturers for certain metal castings. These include W 4682.—Air chamber in quantities of 3,000, 6,000, 9,000 and 12,000 lots; W 2341.—Brass impeller in quantities of 5,000, 10,000 and 15,000 lots; W 1009.—Cylinder plug in quantities of 30,000 and 60,000 lots, W 4901.—Direct-pressure tank in quantities of 500, 1,000, 1,500 and 2,000 lots; W 8620.—Pump body in quantities of 2,500, 5,000 and 7,500 lots; W 8751.—Pump body in quantities of 500, 1,000 and 1,500 lots; W 8753.—Impeller housing in quantities of 1,000, 2,000 and 3,000 lots; W 2370.—Base and impeller case in quantities of 1,000, 2,000 and 3,000 lots; and W 2372.—Motor bracket in quantities of 1,000, 2,000 and 3,000 lots. The above items should be quoted in two ways: (1) Raw castings only and (2) completely-machined castings.

Manufacturers interested in this enquiry should write by air mail direct to Mr. Louis Wozar, president of Tait Manufacturing Company. Quotations should show both f.o.b. and c.i.f. prices in United States currency. It would be appreciated if responding firms would copy their initial correspondence to the British Consulate-General, 1828 Illuminating Building, Cleveland 13, Ohio, to enable the enquiry to be pursued. Please quote reference ESB/17118/59 Com/16716A in any correspondence with the Branch about this circular. (Telephone: CHAncery 4411, extension 776 or 866.)

JIC Scholarship

The Joint Iron Council makes an annual award which enables a young foundryman to attend the National Foundry College. The grant will again be made for the College year 1960-61, through the medium of the Institute of British Foundrymen, who will judge the entries. The Institute is therefore prepared to receive applications for the 1960 award from young foundrymen or students preparing for work within the foundry industry. In general, the award will be confined to applicants under 30 years of age, and it is intended for those who wish to take a course at the National Foundry College, though in very exceptional circumstances consdieration will be given to rendering assistance for some other form of study.

Applications, addressed to the secretary of the Institute, at 14, Pall Mall, London, S.W.1, should be received not later than December 31. Applicants should be of the educational standard necessary to secure admission to the National Foundry College. Candidates for the award should submit the following information: (*a*) Name, address and age; (*b*) name and address of present employer; (*c*) a chronological account of previous experience; (*d*) a chronological account of educational qualifications and technical studies; (*e*) full particulars of any investigational work carried out; (*f*) whether the applicant has applied to any other body for assistance, and (*g*) an assurance from the candidate that he has advised his employer of his intention to apply for the award.

It will be the endeavour of the organizers to secure the co-operation of the selected candidate's employer in ensuring him continuity of employment.

Record Steel Production

Highest October figure for steel production so far reached was reported by the Iron and Steel Board. The weekly average last month was 441,400 tons, compared with 363,500 tons in October, 1958, and 437,800 tons in October, 1957. It is not only a record for October, but only just below the record average weekly production figure of 443,2000 tons for May, 1957. The percentage of steelmaking capacity worked to during the month averaged 92.

Pig-iron production was at the rate of 269,800 tons a week, compared with 241,900 tons a year ago, and 285,000 tons in October, 1957.

Latest pig-iron and steel output figures (in tons), with the corresponding 1958 returns, are shown in the following table:—

Period.	Pig-iron.		Steel ingots and castings.	
	Weekly average.	Annual rate.	Weekly average.	Annual rate.
1959—August ..	219,600	11,418,000	337,100	17,527,000
September ..	251,100	13,057,000	426,400	22,171,000
October ..	269,800	14,029,000	441,400	22,953,000
First ten months	234,200	12,179,000	376,400	19,575,000
1958—August ..	221,000	11,492,000	299,200	15,558,000
September ..	230,900	12,009,000	368,600	19,169,000
October ..	241,900	12,579,000	363,500	18,902,000
First ten months	248,300	12,910,000	377,100	19,609,000

Mr. K. Srinivasan has joined National Machinery Manufacturers, Limited, Thana, Bombay, as chief metallurgist in the foundry, raw materials and testing division.

News in Brief

THE KIDDERMINSTER FIRM of Scott Electric Vehicles, Limited, has been taken over by Conveyancer Fork Trucks, Limited, a subsidiary of Electro-Hydraulics, Limited, of Warrington.

THE OLD-ESTABLISHED FIRM of Varley (Skipton), Limited, engineers and ironfounders, Providence Works, Cross Street, Skipton, has announced its intention to move to Keighley, although it will be some time before the transfer is made.

A GIFT of £100,000 spread over 10 years is to be made to the University College of Swansea by the Steel Company of Wales, Limited. The company's chairman, Mr. Harald Peake, said it was hoped the gift would have the effect of accelerating the building programme.

COCKERILL-OUGREE of Seraing (Belgium) has placed an order for a 4,500-ton press with the Chantiers Réunis de Loire, Normandie. The plant weighs 800 tons and will require more than 100,000 man-hours for its completion. Fifteen months' delivery time has been promised.

THE GUARANTEE on the oil engines of British Polar Engines, Limited, Glasgow, and H. Widdop & Company, Limited, Keighley (Yorks), has been extended to cover a three-year period. The increase applies to all engines now under guarantee, all engines now in hand, and to future contracts.

JARDINE, MATHESON & COMPANY (JAPAN), LIMITED, of Tokyo, have been appointed agents in Japan for trucks, buses and related spare parts produced by Leyland Motors, Limited, Albion Motors, Limited, and Scammell Lorries, Limited. Their address is 210-212, Fukuko Building, P.O. Box 282, Tokyo.

THE KILMARNOCK (Ayrshire) agricultural machinery factory of Massey-Ferguson (Great Britain), Limited, is to resume full-time working after operating a four-day week since August. The move will, however, result in the paying-off of 150 men. About 1,500 men are employed on the shop floor at the factory.

CONTRACT FOR the conversion of the Bloemfontein Castle, the 18,400-ton passenger liner recently sold to the National Greek-Australian Line by the Union Castle Line, has been placed with Smith's Dock Company, Limited, North Shields. Won against keen foreign competition, the contract was awarded on the understanding that work will be completed in 14 days.

CASTROL HOUSE, headquarters of the Wakefield Castrol group of companies, is now located in Marylebone Road, London, W.1, opposite St. Marylebone Town Hall. The building covers a site of nearly an acre and contains two restaurants, a showroom, several conference rooms, a cinema, and, on the 14th floor, a residential suite mainly for the use of visiting group executives from overseas.

Mr. F. N. LLOYD, managing director of F. H. Lloyd & Company, Limited, Wednesbury, presented long-service awards to employees of the company at a dinner on November 14. Awards worth £3,000 were distributed; 66 employees received a gold watch for 40 years' or more service, 16 with 35 years' service received a television table, and 29 with 25 years' received badges and smaller-sized tables.

LORD MCCORQUODALE, chairman of the Industrial Training Council, formally opened on November 12 the £60,000 education centre of the Lockheed organization at Leamington. The centre, covering 16,000 sq. ft., is claimed to be among the most comprehensive in Britain. Its facilities for the organization's 150 apprentices and trainees include a machine-shop, a drawing office, a work-study laboratory and lecture and conference room.

NOTICE OF ITS INTENTION to place a £1,000,000 switchgear contract with the company has been given to Associated Electrical Industries, Limited, by the Central Electricity Generating Board. The switchgear will comprise the first 275-kv. circuit breakers of this rating to be installed in the country and will be used in Thorpe Marsh power station, near Doncaster (Yorks). The equipment will be manufactured at the Willesden works of the AEI switchgear division.

SIR GEORGE DOWTY, once an apprentice at the Worcester engineering company, Heenan & Froude, Limited, and now chairman of the Dowty group of companies, made the first presentation of the "Sir George Dowty Challenge Cup" which he has given for award annually to the Heenan "Apprentice of the Year." Receiving the award was Mr. John C. Slater who started his engineering apprenticeship with the company in 1955. He completes his apprenticeship next year.

THE FIRST STEP in the policy of greatly improving their national coverage was the opening, by Griffin & George, Limited, of a branch at 626, Welbeck Road, Walker, Newcastle-on-Tyne, on Tuesday last. To celebrate this step, two exhibitions have been arranged. The first of these at the Heaton Assembly Rooms, Heaton Road, Newcastle-on-Tyne, 6, from November 17 to 20, and the second at the Corporation Hotel, Corporation Road, Middlesbrough-on-Tees, from November 23 to 25, 1959.

STEEL PRODUCTION in the Common Market countries this year is expected to reach 62,500,000 tons—4,500,000 tons more than in 1958. At the end of September there were standing orders for 12,000,000 tons, compared with 8,500,000 tons at the end of January. Production last month set an all-time record for the Common Market with 5,979,000 tons, compared with 5,538,000 tons in the previous month. Estimated production for the last quarter of the year is 16,700,000 (14,200,000) tons.

FIRTH-VICKERS STAINLESS STEELS, LIMITED, Sheffield, now the biggest producer of stainless-steels in Europe, celebrates its 25th anniversary this month. The company was formed in 1934 for the stainless-steel interests of the English Steel Corporation, Limited, and Thos. Firth and John Brown, Limited, by whom it is jointly owned. Mr. C. E. Holmstrom, who retired from the managing directorship last year, started with the firm at the beginning, from the Firth-Brown side, as sales manager. He is still a director.

"MARKED IMPROVEMENT in world demand for industrial raw materials is expected," said Mr. R. C. Hesketh-Jones, executive in charge of overseas operations for the British Oxygen Company, Limited, at the first national sales conference held in Toronto by British Oxygen Canada, Limited. "Britain, western Europe, and the United States, all are moving into a boom phase, with resultant heavy demand for raw material imports." He said that the British economy was in its soundest position since the last war. It was now gaining a powerful stimulus from the current high level of exports brought about by rising demand for manufactured goods in the raw material producing countries and the ending of the recession in the United States. Western Europe, he said, was now beginning to gain advantages from the formation of the Common Market.

Prevention of Sand-entrained Defects in Steel Castings

This very useful article is a translation from the June issue of the Journal d'Informations Techniques des Industries de la Fonderie. Casting height (that is the distance between the level of the liquid metal in the ladle, and the mould) is stressed as being a most important factor.

It has been noticed that, in any series of castings, the number of sand and slag inclusions encountered can vary in the ratio of 3 to 1 when the casting height is reduced from 28-32 down to 6-8 in. The influence of casting height is much more definite than that of the temperature of the metal. Tests carried out showed that, even when the steel was cast hot (1,610 to 1,680 deg. C.), there was no significant change in the degree of sand entrainment. It has also been found that regularity of pouring rate is of more importance than time of filling. In addition to the above factors, precautions are of course necessary in the actual making of the mould and its runner system. In this connection it should be pointed out that, where staff are meticulously careful, defects from entrained sand can be considerably reduced, especially when the runner system is properly thought out.

Study of a Runner System

Consequent upon a study of a runner system, every precaution having been taken during moulding and closing as well as casting, a system was designed to catch, through the use of an appropriate set-up, any inclusions before they entered the mould cavity. Numerous tests have resulted, in the particular case shown in Fig. 1, in the creation of a layout which does arrest the slag entrainment before the metal enters the mould cavity, even though serious erosion has taken place in the basin and the runner. As is shown in the two illustrations, a subsidiary reservoir has been incorporated in the top part of the mould. To be effective this reservoir must be perfectly formed, and it is essential that the metal passes to the bottom part through a narrowed section, and is then submitted to a rotary motion (having a theoretically horizontal axis) before running laterally into the mould cavity.

Outstanding Results

The results from the set-up have been outstanding, and it should be pointed out in this connection that, from the beginning to the conclusion of the experiment and the final adjustment of the system, the number of defects due to sand entrainment have been reduced in the ratio of 10 to 1. It should be understood, however, that this happy result has only been achieved with one particular casting. However, it does demonstrate the possibilities—apart from the normal precautions necessary during moulding, closing and pouring—of developing, for quantity production, runner systems offering a solid guarantee of good castings. Every individual case, according to the shape, size and detail of the casting, will need a separate study, which can nevertheless frequently result in a layout similar to that described above. The French foundry people have christened this set-up the "jumping" runner, which seems a very appropriate description.

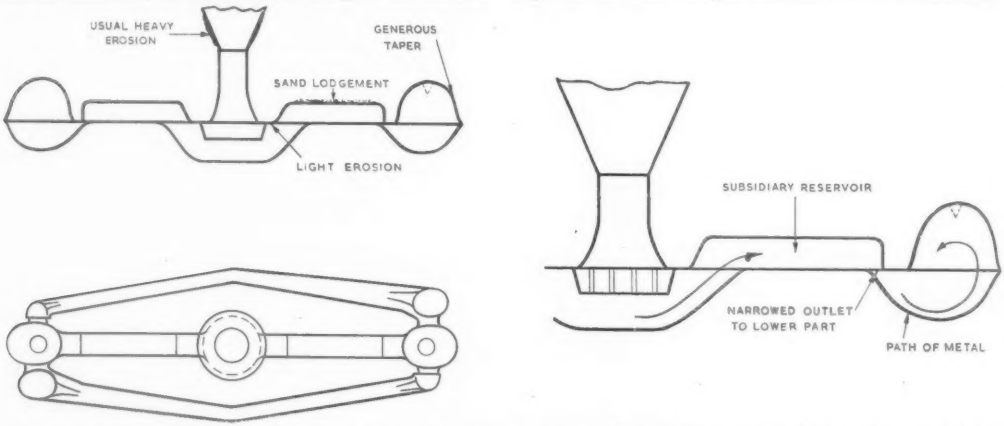


FIG. 1.—*Plan and elevation views of a special runner system, designed in a French foundry, which incorporates a subsidiary reservoir to prevent slag entrainment in metal entering a mould.*

Personal

Mr. PETER JEFFEREY has joined Union Carbide, Limited, as assistant publicity manager.

Mr. R. BOOTHROYD has taken up a post as lecturer in patternmaking and foundry work at Huddersfield College of Technology.

Mr. J. HIGGINBOTHAM, Mr. W. G. A. JENKINS and Mr. F. A. ROSS have been appointed to the board of Edgar Allen & Company, Limited.

Mr. W. WEARING has been appointed to the position of lecturer in charge of foundry and patternmaking courses at Wednesbury technical college.

Mr. D. B. CRAIG, managing director of David Craig & Sons, Limited, Dalkeith, has been admitted to membership of the Edinburgh Merchant Company.

Mr. H. J. PATTERSON, of Dorman Long (Bridge & Engineering), Limited, has been elected honorary treasurer of the Export Group for the Constructional Industries.

Mr. J. L. WILSON and Mr. G. D. MYERS have been appointed additional directors of Wilson Brothers & Company, Limited, brassfounders, Eldon Road, London, N.22.

The new chairman of the Chamberlain group of companies is Mr. LESLIE F. CHAMBERLAIN. His appointment follows the recent death of Mr. Walter E. Chamberlain.

Dr. A. REES JONES has been appointed to the board of Parkinson & Cowan, Limited. He remains a director and general manager of Parkinson Cowan (Appliances), Limited, a subsidiary.

Mr. JOHN BLAKISTON, M.I.MECH.E., will be in India from the end of this month to mid-January in connection with his position as foundry and heavy-engineering adviser to the Indian Government.

To-day H.R.H. THE PRINCE PHILIP, DUKE OF EDINBURGH, paid a visit to the Cricklewood Works of S. Smith & Sons (England), Limited, where he officially opened the new Smiths centre in the headquarters building.

Mr. W. H. BARNES, vice-chairman of Qualcast, Limited, Derby, has resigned from the board because of advancing years. Mr. J. R. FLEMING, joint assistant managing director, succeeds Mr. Barnes as vice-chairman.

Mr. W. B. LANE has been appointed a director of Wolseley-Hughes, Limited, on its acquisition of the capital of Rapid Magnetic Machines, Limited. The management of Rapid Magnetic will remain unchanged under Mr. Lane.

Mr. S. HIBBERT RUSSELL, who retired recently from his position as chairman of S. Russell & Sons, ironfounders and engineers of Leicester, attended the Buckingham Palace Investiture on November 10 to receive his O.B.E.

Mr. THOMAS A. THORNEYCROFT has been appointed chairman of Bairds & Scottish Steel, Limited, in the place of Mr. A. K. MCCOSH, who recently retired from the board. Mr. J. E. GOVAN, secretary of the company, has been appointed a director.

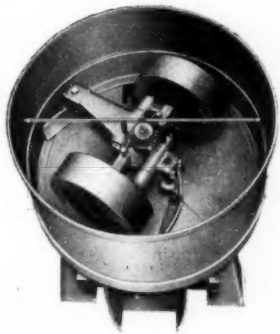
Mr. J. BONHAM-CARTER has been appointed assistant general manager of the Eastern Region of British Railways in succession to Mr. A. J. WHITE, who has retired. Mr. Bonham-Carter was planning officer (electrification) in the office of the Region's general manager.

Convince yourself

that well mixed sand and first-class mulling produces better castings, reduces scrap and fettling costs. Ensure these advantages by using

Richards

Mull Mixer



Modern design avoids breakdowns and expensive maintenance

RICHARDS STRUCTURAL STEEL CO. LTD.
PHOENIX IRON WORKS · LEICESTER
TELEPHONE 61237

Personal

The new factory of the Prestcold division of the Pressed Steel Company, Limited, at Swansea, is to have as production director, Mr. CECIL F. TRACEY, who originally went to the Pressed Steel factory at Cowley, Oxford, to take charge of the planning operations for the Swansea factory.

Mr. A. S. D. BARRATT, technical director of Edwards High Vacuum, Limited, is resigning from the board at the end of the year to become an independent consultant. His association with the company will, however, be maintained by his appointment as technical consultant to the company.

The retirement is announced of Mr. H. D. BOYD, a director of Edgar Allen & Company, Limited, Sheffield. Mr. Boyd, who joined the company in 1906, was elected a director in 1933 and continued in an executive capacity until 1956, though he retained his seat on the board until the present time.

Mr. CHARLES HENRY CRABTREE, chairman of R. W. Crabtree and Sons, Limited, engineers, Leeds, and also of the Crabtree Foundry Company, Limited, iron-founders, Holbeck, Leeds, has retired from the hon. treasurership of the Leeds Musical Festival because of the pressure of business engagements.

Mr. G. R. MCKENZIE has been appointed managing director of the Carborundum Company, Limited, of Manchester, as from January 1, 1960. He will succeed Mr. W. B. CLEVERLEY, who has announced his intention of retiring from the board on December 31. Mr. T. G. G. PETERSON will succeed Mr. McKenzie as controller.

SIR EVELYN BARING and Mr. THOMAS MCIVER have joined the board of Swan Hunter & Wigham Richardson, Limited. Sir Evelyn was until recently Governor and Commander in Chief, Kenya, and Mr. McIver has been general manager of the company's Wallsend shipyard since 1954. Mr. P. L. JONES will retire from the board at the annual meeting in May, 1960.

Union Carbide Limited announce that Mr. L. E. WHITMORE has been appointed director and general manager, polyethylene division; Mr. J. F. WIDMAN previously director of marketing, chemicals, becomes director and general manager, chemicals division; and Mr. R. WILSON has been appointed a director of Union Carbide, Limited, and becomes director and general manager, alloys division.

Mr. LESLIE WADE, who is serving his apprenticeship at Sterling Metals, Limited, Coventry, obtained the highest marks of the 359 candidates who took the 1959 advanced examination in patternmaking of the City and Guilds of London Institute. For this achievement he has been awarded, by the Institute of British Foundrymen, the Tom Makemson memorial medal and prize, which will be presented to him at a meeting of the Birmingham branch of the Institute on December 9.

The following have been appointed new Justices of the Peace for Sheffield Magistrates' Court:—Mr. JOHN MITCHELL BIRKHEAD, patternmaker, of Greystones Road, Greystones, Sheffield; Mr. JOHN WILLIAM CHADWICK, managing director of W. Sampson and Company, electrical engineers, Pitt Street, Sheffield; Mr. ROBERT PERCIVAL PHILLIPS, company director and past-Master Cutler, of Riverdale Road, Sheffield; Mr. STANLEY B. RIPPON, general sales manager in the heavy construction division, Newton Chambers and Company, Limited, Thorncliffe, and Dr. CHARLES SYKES, deputy chairman and managing director of Thos. Firth and John Brown, Limited.

Executive changes are to be made in the English Electric Company's traction organization following the retirement of Mr. C. M. COCK as general manager of the traction department at the end of this year. A new appointment of Mr. H. J. H. NETHERSOLE as general manager of traction has been made. Mr. Nethersole, who has been managing director of the English Electric Company of South Africa (Pty.), Limited, since 1947, will relinquish his post, but will continue as a member of the board of the South African company. He will be succeeded as managing director in South Africa by Mr. R. B. PRICE, who is already a director of the South African company.

Mr. MUIR M. ODDIE, of Spencer & Halstead, Limited, has bought Heath Hall and its associated farm privately from the executors of the late Mrs. Diana Gray, owners of the Heath Estate. Heath Hall is a 35-roomed Georgian mansion, once the pride of the village of Heath, near Wakefield. It was designed by John Carr, the renowned Horbury architect, in about 1782, and was last used as a residence in 1914. It became a hospital during the first world war, and was used for billeting troops during the last war, before becoming a supply depot for the West Riding County Council 11 years ago after being used as a hostel by public works contractors. Although the Hall is in a very poor state at present, Mr. Oddie hopes to live in it eventually.

Sir GUILDHAUME MYRDDIN-EVANS, K.C.M.G., C.B., Chief International Labour Adviser to Her Majesty's Government, and Deputy Secrtary to the Ministry of Labour, will be retiring from public service on December 17. On the international side of his duties at the Ministry of Labour, Sir Guildhaume has been closely associated with the work of the International Labour Organization. Since 1945 he has been principal delegate of the United Kingdom Government to international labour conferences, and has been the United Kingdom Government representative on the governing body of the Organization. Mr. H. F. ROSSETTI, C.B., Deputy Secretary to the Ministry, will succeed Sir Guildhaume on this work, and will accompany him to the meeting of the governing body of the ILO in Geneva this month.

Obituary

Mr. THOMAS PEATTIE COCHRANE, a director of Cochranes (Bo'ness), Limited, has died at the age of 75.

The death occurred on November 5, at the age of 67, of Mr. PERCY MARTIN WATTS, proprietor of the business of Martin H. Watts Exors., brass and iron founders, Catherine Street, Macclesfield.

The death has occurred of Mr. JOHN EDWARD BARROW, aged 69, formerly an overseer in charge of boilers at Leys Malleable Castings Company, Limited, Derby. For some time he was a power-station engineer in Hongkong.

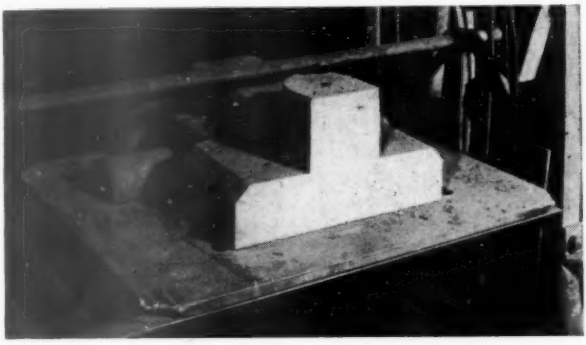
The death occurred on November 8 of Mr. ALBERT HARGREAVES, chairman and managing director of the Wright Hargreaves Engineering Company, Limited, Blackburn. Aged 73, Mr. Hargreaves had been managing director of the company since 1911, when it was known as George Hargreaves & Sons, Limited. He continued as managing director following the amalgamation in 1948 with the Wright Dairy Equipment Company, Limited, of Southport, when the present name was adopted. He became chairman in 1950, on the death of Mr. J. Charnock Wright.

For Rapid Baking . . .

FOUNDRIMET FOUNDRY & METALLURGICAL F&M.S.L.

SUPINOL RB314
CORE OIL

(Patent applied for)



Reduce Baking Time by as much as 50%.

HIGHER DRY STRENGTH THAN LINSEED OIL AT SHORTER BAKING CYCLES

- Economical in use
- More gallons per ton
- Not critical to Baking Temperature
- Cores uniformly baked

MANUFACTURED BY

F & M SUPPLIES LIMITED

4, BROAD STREET PLACE, LONDON, E.C.2.
Telephone: LONDON WALL 7222 (4 lines)
Factory: Concordia Works, London, E.14.

MANUFACTURERS OF
Scientifically developed and controlled Foundry Products

Prompt deliveries from stocks in
GLASGOW · MANCHESTER · SHEFFIELD · BIRMINGHAM & LONDON

Employment Bill Criticized

At the dinner in Birmingham, on November 12, of the Midland branch of the Institute of Directors, Mr. Enoch Powell, M.P., a former Financial Secretary at the Treasury, criticized the new Local Employment Bill, the aim of which is to steer industry into the areas of unemployment and limit new industry in the congested areas. Directors of companies, he said, knew better than "the Gentleman in Whitehall" how to arrive at policy decisions regarding their firms and one of the major factors in decision was locality. Yet there was a real danger that on this matter of locality the doctrine that the man at Whitehall knows best may win acceptance. He agreed that there was a small minority of cases where the economic advantages of alternative locations were finely balanced, but he held that it was fallacious for an outside authority to tip the balance by the refusal of an industrial development certificate. Congestion was often an economic asset Mr. Powell went on. The instinct to get close to other producers and other markets was a sound one and there was no reason to suppose that excess was not self correcting.

Another line of argument Mr. Powell said, was that the economic distribution of industry ought to be corrected to avoid social evils and a waste of social capital. "Even if on the national balance sheet some of this capital has not quite been written off, who knows whether the saving by continuing to use it is not more than counterbalanced by the economic loss on production," Mr. Powell queried. Mr. Guy Chantrey, chairman of the Midlands branch of the Institute, also spoke and the main gist of his speech was the problem of transport. Control of traffic, adequate parking facilities and congestion on the roads must be given top priority he said.

Patents Delegation visit to Russia

The Comptroller-General of the Patent Office, Mr. Gordon Grant, C.B., is at the head of a small delegation which is to visit Russia to discuss the protection available in the USSR for British inventions. He will be accompanied by Mr. William Wallace, Assistant Comptroller of the Industrial Property Department, and by Mr. H. R. Mathys, Fellow of the Chartered Institute of Patent Agents and a director of Courtaulds, Limited.

During the visit of the trade mission last May, led by the President of the Board of Trade, the Russian authorities agreed to provide facilities for a United Kingdom team with a knowledge of Patents procedure to study the working in the USSR of the laws for the protection of inventions—a subject which increases in importance as trade between the two countries increases. Although the Russian Patent law of 1941 is available for study in this country and a few Russian Patents have been taken out by United Kingdom firms, the law has recently been revised and there is little knowledge here of how Russian procedure works in practice. The USSR is not a member of the International Industrial Property Convention, to which most of the Western nations as well as the majority of the countries of Eastern Europe belong.

Mr. FREDERICK NEWTON, a director and one of the founders of Newton Bros. (Derby), Limited, electrical engineers, of Alfreton Road, Derby, has died at the age of 74. For many years he held the position of technical consultant to the firm, as well as being a director.

House Organs

Die-casting News, No. 3. Published by the Zinc Alloy Die Casters Association, 34, Berkeley Square, London, W.1.

It is a desirable activity to show to die-casters and their customers a series of excellent pictures of components showing good design. This preponderating feature of design was well brought home to the reviewer recently when he examined a broken bracket for a domestic gadget. It failed to conform with elementary rules of good design, and when a replacement part was procured, that, too, soon fractured, and the gadget was discarded. Good design is just as important in die-casting as in every other branch of the industry. Moreover, conformation to basic foundry requirements, which in essence involves the blending of corners and shapes, usually produces a better-looking article.

Tin and Its Uses, No. 47. Issued by the Tin Research Institute, Fraser Road, Greenford, Middlesex.

The issue contains an article by Dr. W. E. Hoare on "Modifying the Structure of Cast Iron by Additions of Tin." This is a very controversial subject, and the reviewer counsels *va piano* with the use of tin for this purpose until more agreement in metallurgical circles has been established. In the meantime, however, foundrymen should certainly familiarize themselves with the research work so far undertaken. Another article in the magazine which is of great interest to foundrymen, is an illustrated description of the new Alice-in-Wonderland bronze statuary group recently erected in Central Park, New York. It was cast in 70 separate pieces by the Modern Art Foundry of that American city.

Butterley Foundry News, No. 3. Issued by the Butterley Company, Limited, Ripley, Derbyshire.

This issue illustrates and describes castings which the company has made for W. H. Allen Sons & Company, Limited, and the making of turbine-casing castings for Fraser & Chalmers of Erith. Both these companies used to operate their own foundries. There are two other articles in the magazine, one is about the Meehanite Foundry School and the other is entitled "The Importance of Grain Structure." This little magazine is unique amongst foundry house organs, as it is addressed to the company's customers.

Foseco Foundry Practice, No. 136. Issued by Foundry Services, Limited, Long Acre, Nechells, Birmingham.

This issue contains an article on the foundry of 1978, by Mr. D. Lie Eide, which was accorded the first prize in a competition organized by Foundry Services, Limited. Whilst the system described is novel and imaginative, it is far from what the reviewer visualizes will be the foundry of the future.

One and All, Vol. 6, No. 24. Published by Tangyes, Limited, Birmingham.

House organs take many forms, but this one is designed to interest and inform the firm's agents. Thus it carries descriptions of new types of plant marketed, important jobs recently carried out by the company and its exhibition activities. For large firms the reviewer deems it wise to foster interest in recent matters with which the agencies should be familiar.

Cast-iron Garden Urns: Mr. T. M. Stothert of Cranes Hall, Cranes Lane, Lathom, Ormskirk, Lancs, would welcome information from any foundry possessing patterns of decorative Victorian garden urns.

at Stand W380 at the Building Exhibition Olympia

If you have a dust problem, we have an answer to it—an answer based on over 30 years' specialisation in industrial dust collection. During that time, we've settled pretty well every kind of industrial dust: metal, wood, plastic, food, chemical, and so on. We've done it with the help of up-to-the-minute scientific research and the widest range of equipment made in this country: filters, large and small unit collectors, wet collectors (particularly useful for fine or explosive dust), and complete plant installations. All our collectors are self-cleaning and are designed for either fully or semi-automatic operation.
See us for dust—and settle it once and for all.

DALLOW LAMBERT *dust control equipment for industry*
DALLOW LAMBERT & COMPANY LIMITED, THURMASTON, LEICESTER
CRC 62

Raw Material Markets

Iron and Steel

Output of castings at the ironfoundries continues to vary from one establishment to another. The engineering and speciality foundries maintain their comparative supremacy in production, as the demand for high-quality castings from many users is substantial. Foundries supplying castings to the motor vehicle trade are particularly well employed. From many other trades come appreciable demands for high-duty castings, including the heavy engineering and electrical trades, agricultural implement makers, and the machine-tool trade. The steelworks are also now taking much larger quantities of castings. The requirements of the machine-tool trade are improving slowly, but from collieries and railways there is only a moderate call.

These foundries continue to obtain most of the pig-irons of their choice without difficulty, but certain brands of the low-phosphorus irons are not now so easily obtainable, particularly for prompt delivery. Following the recent increased demands, some producers have now disposed of their stocks and are dependent on current outputs, which are fully covered for some weeks ahead. Hematite pig-iron is in good supply, although demands for this grade continue to expand.

The high-phosphorus pig-irons are still the most plentiful, and the foundries using this grade, including the light-casting trade and the textile and some of the engineering foundries, are able to obtain the tonnages they require without difficulty. Increased demands continue to come from the light-casting trade as well as from some of the engineering foundries, but the usage by the textile foundries remains moderate. Producers have tonnages to spare from current production and appreciable stocks are also held by them. Export orders continue to help in reducing stocks; fairly good shipments have been made recently.

Most of the re-rollers are working full time. The call for small bars and light sections is at a good level and reinforcing rods are in heavy demand. To implement the work now on hand and to obtain an adequate working stock, there is an expanding demand for steel semis, including billets, blooms, and slabs, and orders already booked by home steelworks are absorbing present outputs fully and for many of them will continue to do so until early next year.

Non-ferrous Metals

The way in which the US copper industry has set its face against any overall settlement of its present difficulties defies description. Indeed, it raises the question as to whether something basic to both management and labour is at stake with neither side daring to pose the issue publicly. After all, when the strike started about three months ago there were several hundred thousand tons of copper overhanging the market and production in the major copper-producing centres of the world was going full steam ahead. In these circumstances there were many who felt that a strike of reasonable duration would be a good thing to take up the slack and put a firmer basis to the price structure. In the event, however, nothing of the kind has happened. The price has risen only very gradually in the US, despite stocks being run down to vanishing point, custom smelters being unable to quote a price and producers retiring from the market—temporarily—because of lack of copper to sell. A very strange situation indeed.

The unions were well aware when they struck that copper stocks in the hands of consumers and producers were abnormally high, so that it cannot be said that they went idle with their eyes shut. Meanwhile, the most mystifying thing about it all is that neither side has made much effort to get the truce ball back in play, so that after three months it is hardly any wonder that the whole market structure is beginning to crumble. At present, those US producers still having copper to offer are now asking 33 cents a pound, the price level to which Anaconda raised its sights last week. There is still no price quoted by the US custom smelters.

What then of the outlook? It would seem only reasonable to assume that more negotiations are taking place between the copper companies and labour than has been, or is being, admitted to the Press. And if that view is reasonable it is also reasonable to assume that a settlement will come quicker than most observers think. Apart from conjecture, the outlook on known information looks desperate and is made the more so by the growing belief that the longshoremen, brought back to work by the Taft-Hartley Act, will go idle again after Christmas. The price for No. 2 scrap in New York now stands at 27 cents a pound.

The London market, though a fairly roaring proposition, is unable to take the best advantage of the US situation as it is heir to every rumour that blows down Whittington Street. Last week was no exception and, after overcoming the misstatement that a strike settlement had been reached on Phelps Dodge Arizona property, it was then beset by that old bogey—impending releases from the US stockpile. These ill-winds certainly show up its vulnerability, as does the fact that it takes a great deal of notice of the New York Commodity Exchange. Anyway, the London market prices are jumping up and down, but there seems no reason to believe that the overall trend will be anything rather than upwards in the absence of labour peace in America, especially now that the steelmen are back on the job.

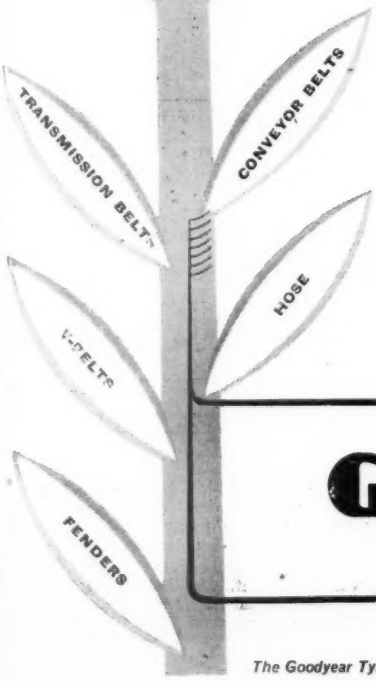
Tin is another market which has suffered somewhat from misleading, or, rather, unconfirmed statements. In particular, there was the opinion given that the buffer stock had now been depleted down to its last 3,000 tons and this, no doubt was a help to the market price and any speculators. However, Mr. P. G. Smith, chairman of the committee of the LME, went on record as saying that this estimate was wide of the mark, as was another estimate that the buffer stock was down to around 6,000-6,500 tons. Yet, a perusal of Mr. Smith's statement to the members of the LME on this subject shows that it is a masterpiece of avoiding action, so that the rumours have not really been dealt with as yet satisfactorily. However, a damper to tin market enthusiasm was announced at the end of last week in the shape of 2,500 tons of tin to be made available to the buffer stock manager from the Board of Trade on December 28. This release is subject to agreement of the International Tin Council, which meets next month.

In so far as the market in London is concerned, the cash price is now nudging the £800-a-ton level and, despite the action taken by the Board of Trade, demand is strong enough to hold the present level. The US market is dull, with the price below $1.02 a pound.

Lead is still slightly more active than it has been in the past, but there is plenty of metal about again to satisfy demand. The US market is quietly steady without feature and the price is unchanged at 13 cents a pound. Zinc, though somewhat uncertain after last week's setback, is still experiencing satisfactory demand and the price is holding nicely around £95 a ton. The US East St. Louis spot quotation is still called 12½ cents a pound.

From the Goodyear family tree

BELTING THAT TAKES A LOT OF BEATING



Whatever material you want to move, whatever the conditions, you'll find the conveyor belt for the job in the Goodyear family tree! For abrasive coke or hot sinter . . . oily materials or sharp stone . . . food and coal . . . a 'job-designed' Goodyear belt is your best choice for longest, low-cost performance. Special features include: good troughing, high impact resistance and flex life, and resistance to mildew. Get in touch with Goodyear now for Britain's most comprehensive conveyor belt service.

- Tough cover compounded to suit job
- Breaker fabric between cover and carcass—where required
- Plies of close-woven cotton duck, or synthetic fibres, mildew inhibited
- Skim coat between plies to increase flexibility, prevent separation
- Substantial edge cover to resist wear

GOODYEAR

THE GREATEST NAME IN RUBBER

The Goodyear Tyre & Rubber Company (G.B.) Ltd., Industrial Rubber Products Dept., Wolverhampton

Current Prices of Iron, Steel, and Non-ferrous Metals

(Delivered unless otherwise stated)

November 18, 1959

PIG-IRON

Foundry Iron.—No. 3 IRON, CLASS 2, 10-ton lots or over: Middlesbrough, £21 6s. 0d.; Birmingham, £20 18s. 3d.

Low-phosphorus Iron.—Over 0.10 to 0.40 per cent. P, 10-ton lots or over, £23 5s. 0d., delivered Birmingham, £23 10s. 0d., delivered Grangemouth.

Cylinder and Refined Irons.—North Zone, £25 6s. 6d.; South Zone, £25 9s. 0d.

Refined Malleable.—P, 0.10 per cent. max.: North Zone, £26 6s. 6d.; South Zone, £26 9s. 0d.

Hematite.—Si up to 2 per cent., S. & P. over 0.03 to 0.05 per cent., 10-ton lots or over: N.-E. of England (local iron), £24 14s. 0d.; Scotland (Scotch iron), Zone S.1, £25 0s. 6d.; Sheffield, £26 2s. 6d.; Birmingham, £26 9s. 0d.; Wales (Welsh iron), £24 14s. 0d.

Basic Pig-iron.—£20 3s. 0d., delivered Staffs, Derbyshire, Notts, Lincs, Rutland, Northants, and Leicestershire in 10-ton lots or over.

FERRO-ALLOYS

(Per ton unless otherwise stated, delivered)

Ferro-silicon (6-ton lots and over).—45 per cent. Si, £40 0s. 0d. to £42 10s. 0d., scale 15s. 0d. per unit, lumpy; 75 per cent. Si, £54 0s. 0d. to £57 10s. 0d., scale 15s. 0d. per unit, lumpy.

Ferro-vanadium.—50/60 per cent., 22s. 6d. per lb. of V.

Ferro-molybdenum.—65/70 per cent., carbon-free, 12s. 10d. per lb. of Mo.

Ferro-titanium.—20/25 per cent., 2-3 per cent. Cu, £250 0s. 0d.; 38/40 per cent., commercially carbon-free, £287 0s. 0d.

Ferro-tungsten.—80/85 per cent., 10s. 3d. per lb. of W.

Tungsten Metal Powder.—98/99 per cent., 13s. 3d. per lb. of W.

Ferro-chrome (6-ton lots and over, lumpy).—4/6 per cent. C, £77 0s. 0d. to £81 0s. 0d., basis 60 per cent. Cr, scale 26s. 0d. to 27s. 6d. per unit; over 6 per cent. C, £74 10s. 0d. to £77 10s. 0d., basis 60 per cent. Cr, scale 26s. 0d. to 27s. 6d. per unit; 2 per cent. C,* 1s. 7¼d. to 1s. 10½d. per lb. Cr; 1 per cent. C,* 1s. 8d. to 1s. 11d. per lb. Cr; 0.15 per cent. C,* 1s. 9d. to 2s. 0d. per lb. Cr; 0.10 per cent. C,* 1s. 9¼d. to 2s. 0¼d. per lb. Cr; 0.06 per cent. C,* 1s. 9¾d. to 2s. 0¾d. per lb. Cr.

Metallic Chromium.—98/99 per cent., 6s. 10d. per lb.

Metallic Manganese.—94/96 per cent., carbon-free, £245 0s. 0d.; 96/98 per cent., £275 0s. 0d.

Ferro-columbium.—65/67 per cent., Cb + Ta, 19s. 9d. per lb., Cb + Ta.

Ferro-manganese (Standard).—78 per cent., £63 10s. 0d.

SEMI-FINISHED STEEL

Re-rolling Billets, Blooms, and Slabs.—BASIC: Soft u.t., 100 tons & over, £31 15s. 6d.; tested, 0.08 to 0.33 per cent. C, 6 to 35 tons, £33 15s. 6d.; hard (0.41 to 0.60 per cent. C), under 10 tons, £34 17s. 0d.; silico-manganese, under 10 tons, £43 16s. 6d.; free-cutting, under 10 tons, £36 14s. 6d. SIEMENS MARTIN ACID (under 10 tons): Up to 0.25 per cent. C, £41 1s. 0d.; silico-manganese, £44 4s. 0d.

Billets, Blooms, and Slabs for Forging and for Stamping (under 10 tons).—Basic, soft, up to 0.33 per cent. C, £38 10s. 0d.; basic, hard, over 0.41 up to 0.60 per cent. C, £39 12s. 6d.; acid, up to 0.25 per cent. C, £43 4s. 0d.

* Average 68-70 per cent.

FINISHED STEEL

Heavy Plates and Sections (under 10 tons).—Ship plates, (N.-E. Coast), £42 2s. 0d.; boiler plates (N.-E. Coast), £44 12s. 0d.; floor plates (N.-E. Coast), £43 11s. 0d.; angles (N.-E. Coast), £39 16s. 6d.; joists (N.-E. Coast), £39 12s. 6d.

Small Bars, Sheets, etc.—Rounds and squares, under 3 in., and flats 5 in. wide and under, untested soft basic, 50 tons and over, £39 1s. 0d.; under 10 tons to 4 tons, £40 18s. 0d.; under 4 tons to 2 tons, £41 3s. 0d.; hoop and strip, coils, 100 tons and over, £38 0s. 0d.; uncoated strip mill coils, hot rolled, under 3 mm. to 12g., 25 tons to under 50 tons, £43 16s. 0d.; black sheets (hand mill), 24g., 10 tons and over, £57 14s. 6d.; galvanized corrugated sheets, 24g., 10 tons and over, £67 11s. 0d.

Alloy Steel Bars.—1 in. dia. and up; Nickel, £68 10s. 0d.; nickel-chrome, £99 4s. 0d.; nickel-chrome-molybdenum, £111 17s. 0d., in lots of 5 tons to under 10 tons.

NON-FERROUS METALS

Copper.—Cash, £247 10s. 0d. to £248 0s. 0d.; three months, £237 10s. 0d. to £238 0s. 0d.; settlement, £248 0s. 0d.

Copper Tubes, etc.—Solid-drawn tubes, 2s. 6d. per lb.; rods, 275s. 6d. per cwt. basis; 20 s.w.g., 310s. 6d. per cwt.

Tin.—Cash, £797 0s. 0d. to £797 10s. 0d.; three months, £797 0s. 0d. to £797 10s. 0d.; settlement, £797 10s. 0d.

Lead (Refined Pig).—Second half November, £73 5s. 0d. to £73 7s. 6d.; second half February, £73 5s. 0d. to £73 7s. 6d.

Zinc.—Second half November, £94 15s. 0d. to £95 0s. 0d.; second half February, £89 15s. 0d. to £90 15s. 0d.

Zinc Sheets, etc.—Sheets, 15g. and thicker, all English destinations, £130 7s. 6d.; rolled zinc (boiler plates), all English destinations, £128 2s. 6d.; zinc oxide (Red Seal), d/d buyers' premises, £107 10s. 0d.

Brass Tubes, etc.—Solid-drawn tubes, 2s. 0¾d. per lb.; sheets to 10 w.g., 223s. 0d. per cwt.; wire, 2s. 10¾d.; rolled metal, 223s. 0d. per cwt.

Brass (Brazing).—BS1400, B3, £162; B6, £209.

Brass (High Tensile).—BS1400, HTB1, £219; HTB2, £210; HTB3, £227.

Gunmetal.—BS1400, LG2, £203; LG3, £213; G1, 1%, £268; G1, 1%, £256.

Phosphor Bronze.—BS1400, PB1 (AID released), £301; BS1400, 90/10/1, —

Leaded Phosphor Bronze.—BS1400, LPB1, £222.

Phosphor Bronze Strip, etc.—Strip, 314s. 9d. per cwt.; wire, 4s. 3¾d. per lb.; rods, 3s. 6¾d.; tubes, 3s. 6¾d.; chill cast bars; solids 3s. 6¼d.; cored 3s. 7¼d. (CHARLES CLIFFORD, LIMITED.)

Nickel Silver, etc.—Rolled metal, 3 in. to 9 in. wide × 0.056, 4s. 0¼d. per lb.; round wire, 10g. in coils (10 per cent.), 4s. 5¼d.; special quality turning rod, 10 per cent., ½ in. dia., in straight lengths, 4s. 4½d. All prices are net.

Other Metals.—Magnesium, ingots, 2s. 0d. to 2s. 3d. per lb. Antimony, English, 99 per cent., £190 0s. 0d. Quicksilver, ex-warehouse, £72 0s. 0d. Nickel, £600 0s. 0d. Aluminium, ingots, £180 0s. 0d.; aluminium bronze (BS1400), AB1, £248; AB2, £258.

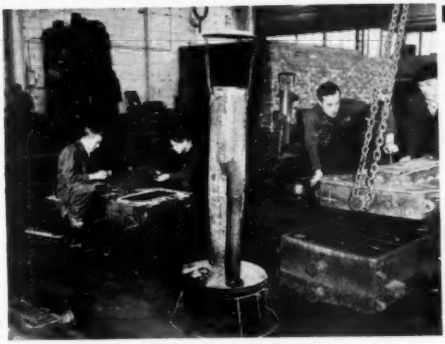
REGISTERED ACE TRADE MARK
★ OIL BURNING ★
"Sally" the Salamander
(Patent No. 794149)

spreads heat over a wide area

FOR
WARMTH
IN THE
FOUNDRY

70,000 to 140,000 B.T.U's of clean heat per hour on ½ to 1 gallon of paraffin according to setting of the regulator.

ONLY £10/16/9 EACH



'SALLY' PROVIDING WARMTH AT *LOW* COST IN THE NEW FOUNDRY AT BICC WORKS AT PRESCOT

Photograph by kind permission of British Insulated Callender's Cables Ltd.

* *For full particulars write now to*

ACE HEATERS (HY-LO) LTD., P.O. BOX 81, 24 CHAPEL ST. LIVERPOOL

TELEPHONE: CENtral 4265

PIG IRON

Low Phosphorus
Refined & Cylinder
Hematite
Malleable
Derbyshire
Northamptonshire
Swedish Charcoal

Ferro Silicon (12-14%)
Alloys & Briquettes
N.F. Metals & Alloys
Limestone
Ganister
Moulding Sand
Refractories

WILLIAM JACKS & Co., Ltd.
Winchester House, Old Broad Street
TELEPHONE: LONDON WALL 4774 (8 Lines) London, E.C.2.

Birmingham, 2.
39, Corporation Street.
MIDLAND 3375/6.

Liverpool, 2.
13, Rumford Street.
CENTRAL: 3558

Glasgow, C.2.
93, Hope Street.
CENTRAL: 9969.

Company News

RICHARD LLOYD, LIMITED, manufacturers of machine-tool equipment, etc., of Birmingham—Ordinary shareholders will receive on December 8 a distribution of 3d. per 5s. share from the realization of capital assets.

CHARLES CLIFFORD, LIMITED, manufacturers of non-ferrous metals, of Birmingham—It is proposed to pay a capital dividend of 1s. 6d. per £1 ordinary unit to holders on November 25. The proposal will be considered at an extra-ordinary meeting on December 1.

HEENAN GROUP, LIMITED, holding company for manufacturing engineers, etc., of Worcester—The dividend for the year to August 29, 1959, is increased to 15 (10) per cent., with a final of 12½ per cent. Group profits advanced to £521,469 (£419,481) and the net profit is £258,880 (£169,314).

BIRMINGHAM SMALL ARMS COMPANY, LIMITED—Final dividend on the £5,630,344 ordinary is being raised to 9½ (8) per cent., making 12½ (11) per cent. for the year to July 31, 1959. Trading profit is £2,469,819 (£2,261,707), tax absorbs £1,335,976 (£1,275,113), and the profit balance is £1,210,522 (£1,056,726).

HALE & HALE (TIPTON), LIMITED, malleable iron-founders, of Tipton (Staffs)—The final dividend is raised to 15 (10) per cent., making 20 (15) per cent. for the year ended August 4, 1959. In addition there is a capital distribution of 3s. per 5s. share (nil) from profits of £142,857 realized on the sale of investments. Group trading profit is £74,869 (£70,699).

THOMAS BLACKBURN & SONS, LIMITED, structural and general engineers and ironfounders, etc., of Preston (Lancs)—There will be no dividends for the year to June 30, 1959, compared with a previous ordinary dividend of 5 per cent. Loss after charging all expenses is £224,119. A 12-month moratorium was granted by the creditors in June in respect of the company's liabilities.

WELLMAN SMITH OWEN ENGINEERING CORPORATION, LIMITED—An extra-ordinary meeting is called for November 26 to create 800,000 £1 ordinary shares and to effect the one-for-two scrip issue to holders on November 20. The directors consider it preferable to defer declaration of any interim dividend until early in the New Year, when it could be made payable on the increased capital.

COCHRAN & COMPANY ANNAN, LIMITED, engineers and boilermakers, of Annan (Dumfriesshire)—Reduction to 9 (8) per cent., tax free, is announced in the dividend for the year to June 30, 1959, with a final of 7 per cent. The total for 1957-58 included a special interim of 2 per cent. Profit fell to £199,093 (£273,238), and after tax of £104,985 (£157,559), the net profit is down to £94,108 (£115,679).

RANSOME & MARLES BEARING COMPANY, LIMITED—The increase in demand experienced in the latter part of 1958-59 has continued with a resultant increase in the order-book, and with output running at a high level, says the chairman, Mr. E. W. Senior. Now that the political uncertainty surrounding the industry has been dispelled, he believes that there is every reason to expect the economy to continue to expand.

MIDLAND ALUMINIUM, LIMITED—The chairman, Major C. R. Dibben, says that indications are that the company should be able at least to maintain the level of profits with reasonable anticipation that in some directions there may be an improvement. The need for conserving cash, he says, is paramount if the group is to continue expansion plans. Group net profit for the year to June 30, 1959, is £119,337 (£84,058) and a dividend of 15 (12½) per cent. is being paid.

JOHN I. THORNYCROFT & COMPANY, LIMITED, marine engineers, ship builders and repairers, of London, S.W.1—New ship orders are urgently required to maintain continuity of work after next April, states Sir John Thornycroft, chairman. The management is constantly investigating and planning how manufacturing and servicing assets can be used to the best advantage. A group net loss of £65,214 (profit of £208,901) was incurred in the year to July 31, 1959, and the dividend is cut to 6 (7½) per cent. A year ago there was also a 1 per cent. capital distribution.

CROMPTON PARKINSON, LIMITED, manufacturing electrical engineers, of London, W.C.2—The chairman, Mr. Albert Parkinson, believes members can expect a year in which trading conditions will be considerably more difficult and it is to an expansion policy that holders must look for the maintenance and development of profitability. In the year ended June 30, 1959, trading surplus declined by £48,618, but there was an increase of £116,732 in trade investment income, giving an overall increase of £68,114 at £2,755,691. The dividend is increased to 14 per cent. compared with 12 per cent. for the previous year, and a one-for-four scrip issue is proposed.

Mr. H. W. Secker, chairman of THOS. W. WARD, LIMITED, states he is reasonably satisfied with the outlook for interests in scrap, shipbreaking, cement, quarries, supply of contractors' plant, supply and construction of railway sidings, motor-car distribution, and the re-rolling of steel. He cannot be so sanguine about those sections concerned with heavy engineering and the machine-tool industries. A one-for-one scrip issue is proposed and Mr. Secker makes it clear that it must not be assumed that an increase in dividend will automatically follow the capitalization. On present indications it is unlikely, he says. Certain aspects are being considered by legal advisers and when these are settled the necessary meetings will be convened. Group turnover decreased by about 11 per cent. to £43,230,000 in the year ended June 30, 1959, but the net profit rose to £1,442,519 (£1,174,130). The dividend is increased to 25 (20) per cent.

Increases in Capital

DAVIES STEEL SPECIALITIES, LIMITED, Cardiff, increased by £95,000, in £1 ordinary shares, beyond the registered capital of £5,000.

VACWELL ENGINEERING COMPANY, LIMITED, London, S.E.1, increased by £9,000, in £1 ordinary shares, beyond the registered capital of £1,000.

JOHN HARPER & COMPANY, LIMITED, malleable iron and brass founders, etc., of Willenhall (Staffs), increased by £1,000,000, in £1 shares, beyond the registered capital of £500,000.

PRUDENTIAL ENGINEERING COMPANY, LIMITED, mechanical and general engineers, etc., of London, W.1, increased by £13,900, in £1 ordinary shares, beyond the registered capital of £100.

BRIDPORT INDUSTRIES, LIMITED, manufacturers of twine, rope, netting, etc., of London, E.C.2, increased by £100,000, in 4s. ordinary shares, beyond the registered capital of £450,000.

ALFRED BECKETT & SONS, LIMITED, steel, file, saw, and machine knife manufacturers, etc., of Sheffield, increased by £10,000, in 100,000 ordinary shares of 2s., beyond the registered capital of £100,000.

TENABLE SCREW COMPANY, LIMITED, mechanical and general engineers, etc., of London, S.W.19, increased by £40,000, in 16,000 unclassified and 24,000 10 per cent. cumulative redeemable preference £1 shares, beyond the registered capital of £20,000.

COLIN THOMPSON (ENGINEERING), LIMITED, manufacturers of and dealers in agricultural machinery, etc., of Norton Fitzwarren, near Taunton (Somerset), increased by £8,000, in one founder and 7,999 ordinary shares of £1, beyond the registered capital of £8,000.

IMPERIAL ALUMINIUM COMPANY, LIMITED, London, E.C.2, increased by £3,220,000, in 415,000 redeemable cumulative preference and 2,805,000 ordinary shares of £1, beyond the registered capital of £2,695,000. The increase is for the purpose of acquiring the undertaking, comprising the production, sale, and distribution of wrought aluminium products, carried on by the metals division of Imperial Chemical Industries, Limited.

Refractory Concrete

the ADAPTABLE Refractory Material made with crushed firebrick and CIMENT FONDU

best for Bogie Tops

because :—

The reduction of joints eliminates displacement troubles.
It is ready for use and of great strength and hardness within 24 hours.
It will withstand severe thermal shock without spalling.
It has a smooth level surface. It has no appreciable drying shrinkage or after-contraction.
It is stable under load up to 1,350° C. (2,460° F.).

Write for further details and photographic examples

CIMENT FONDU
Regd Trade Mark
ALUMINOUS CEMENT

USE SECAR 250
(an iron-free white calcium-aluminate cement)
for
Super Duty and Special Conditions of :
Higher temperatures up to 1800°C
Reducing atmospheres
Resistance to Slag attack
Resistance to products of combustion
Write for booklet "SECAR 250"

is manufactured by—
LEFARGE ALUMINOUS CEMENT COMPANY LIMITED
73 BROOK STREET, LONDON, W.1. Telephone: MAYfair 8546 A.P.57

New Patents

(Copies of complete specifications are obtainable from the Patent Office, Sales Branch, 25, Southampton Buildings, Chancery Lane, London, W.C.2, price 3s.)

807,775. National Lead Company, 111 Broadway, New York, USA.

Cold-chamber die-casting apparatus. The invention refers particularly to improvements in the charging apparatus for a cold-chamber shot-sleeve.

807,868. Vyzkumny Ustav Obrabeicich Stroju A Obrabeni Praha, 24 Na Zertvach, Prague VIII, Czechoslovakia.

A process and apparatus for the casting of objects without the use of moulds with solid walls.

807,938. Societe D'Electro-Chimie, D'Electro-Metallurgie et des Acieries Electriques D'Ugine, 10 Rue du General Foy, Paris, 8, France.

Improvements in, or relating to, the manufacture of composite-metal articles, consisting of two or more steels or ferrous alloys.

808,319. Stanton Ironworks Company, Limited, near Nottingham.

Improvements in blowing cores for castings. Sand is driven from a vessel in a stream of air into a corebox lying beneath the vessel, and having an open bottom. A series of core supports is carried successively in and out of register with the bottom of the corebox. Air is automatically admitted to the vessel after each support has been carried into register and released through a port in the vessel before each support is carried out of register. A claim is also put forward by the inventors to provide for a hopper from which sand can flow to the vessel. This flow is cut off before the admission of air, and re-established after the release of air. (See also B.P.776,031, FOUNDRY TRADE JOURNAL, August 15, 1957.)

808,345/6/7/8. Herman Pneumatic Machine Company, Union Bank Building, Pittsburgh, 22, Penns., USA.

Centrifugal-casting apparatus is described in Patent No. 808,345, while a method and apparatus for compacting a mould-forming material in a rotating flask is patented in specification 808,346. This latter is concerned primarily with the formation of an elongated, generally cylindrical mould of compacted mould-forming material—such as may be employed in the casting of, for example, hollow pipes. Reference is made to a previous patent, B.P.650,683, for this apparatus. B.P.808,347 also deals with a centrifugal-casting apparatus, which is claimed to be simpler and speedier than hitherto known methods. Herman Pneumatic's last Patent in this series, B.P.808,348, deals with a foundry moulding machine of the centrifugal type. The company claims to be able to "effect the consolidating of the mould-forming material in the flasks without offsetting the mandrels (used for compacting), and by a simple angular movement of the flasks. The mechanism is simpler, easier to operate, and less likely to require adjustment."

808,364. Bakelite, Limited, 12, Hobart Place, London, S.W.1.

In the manufacture of shell moulds, this invention relates to a method by which a mixture of sand and resin is blown into a mould cavity formed between a hot patternplate and a contour plate, through holes in the contour plate. The hot pattern with the uncured shell on it, is moved from the contour plate, and the shell mould baked while still in position on the pattern. By this method, it is claimed, any desired thickness of shell may be obtained at any predetermined point. A variety of resins may be used, for example, phenolic, silicone and urea resins.

808,444. National Lead Company, 111 Broadway, New York, 6, New York, USA.

Metal metering apparatus for delivering measured amounts of molten metal in die-casting processes.

808,573. Walter McFarlane and Company, Limited, Saracen Foundry, 73, Hawthorn Street, Glasgow, N.2.

A method of manufacturing cast-iron pipes, such as rainwater pipes, by centrifugal casting. The pipes, according to this invention, are cast with flat ears which project from, and are integral with, the socket ends. (See also B.P. 310,224.)

808,585. George Fischer, A. G., Schaffhausen, Switzerland.

This invention relates to machines for automatically mounting weights on moulds before casting, and for removing and returning the weights after casting.

808,834. Metropolitan-Vickers Electrical Company, Limited, 1-3, St. Paul's Churchyard, London, E.C.4.

Improvements in vacuum casting, eminently, but not exclusively applicable to precision casting of long thin objects. The process is claimed to enable a high surface finish or definition to be obtained. (See also B.P. 722,816, which describes the shell mould for use in conjunction with the present invention.)

809,025. Zentralinstitut für Giesserei-technik, Gerhard-Ellrodt-Strasse, Leipzig, W.34, Germany.

A method of producing sand moulds for the casting of hollow crankshafts and similar articles. The inventors employ vertically-stacked moulding-box sections, the height of which is determined by the axial length of the work piece to be cast.

809,098. Compagnie de Pont a Mousson, Place Camille Cavallier, Nancy (Meurthe-et-Moselle), France.

Rotatable, metallic tubular devices used in machines for centrifugally casting pipes and the like. Between a concentric shell and a sleeve there is an annular space in which there are a number of closed elastic collars arranged along the shell. Each of these collars is formed of a helical spring which is bent in the form of a toric ring around the shell. The coils in the spring are open, or in non-abutting relation, and the two ends of the spring are interconnected either by a fastening device or by welding. Owing to this new application of helical springs, the inventors have found that the centering of the shell in the sleeve is absolutely perfect, irrespective of the variations in the dimensions of the shell, due to thermal expansions in the course of machine operation.

Recent Wills

WOOD, HANSON, a director of Lumbys, Limited, boilermakers, ironfounders, etc., of Greetland, near Halifax (Yorks) £25,966

MATTHEWS, SIR RONALD, deputy chairman of the Independent Television Authority, former chairman of the London & North Eastern Railway, Master Cutler in 1922, chairman of Turton Bros. & Matthews, Limited, the Sheffield steel firm, late chairman of General Refractories, Limited, former director of the Brush Electrical Engineering Company, Limited, Marshall, Sons & Company, Limited, J. P. Skinner & Company, Limited, and other companies £54,407